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Department of Medical Humanities
Southern Illinois University
School of Medicine
P.O. B ox 19230
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Portrait of Samuel Hahnemann by an unknown artist was said to have been painted for Queen Victoria. (Photo courtesy of Hahnemann University Archives.)

HOMEOPATHY IN ILLINOIS

By Frederick Karst

INTRODUCTION

Dr. Samuel Hahnemann of Leipzig, Germany, appeared a person unlikely to arouse the medical world. By 1790 he had given up treating patients and wandered about Europe with his wife and children. Dr. Hahnemann's hiatus from his healing vocation, however, was no simple case of what today might be called "burnout." His disillusionment with his own inability to cure his patients was a reflection of his assessment of the medical profession: that the "cures" were usually worse than the disease.

Although the world at this time was near the threshold of a vast breakthrough of scientific discovery, physicians had little understanding of the human organism and few treatments that really aided healing. Pleas for a return to careful observation of patients as Hippocrates had taught were scarcely heard. Instead, the fashion of the period was to assail the patient's system with a vengeance. Purging, bloodletting and complicated prescriptions of toxic drugs were favored remedies for a host of maladies.

Christian Friedrich Samuel Hahnemann had shown promise as a student, and he had obtained his medical education at the universities of Leipzig and Erlangen, where he received his degree in 1779. Early in his career, his distaste for blistering, use of purgatives and venesection led Hahnemann to recommend instead exercise along with a wholesome diet and fresh air.[1] Certainly he was ahead of his time in advocating personal and public hygiene and humane treatment of the mentally ill.[2] However, what interested him most was experimenting in pharmacology and the effect of medicines.

This German physician, who was both innovator and philosopher, was also skilled in languages. Having ceased practicing, he earned a bare living translating medical works. One of the leading physicians of the eighteenth century was William Cullen, whose teachings at the University of Edinburgh acquired a following that spread to the European continent as well as to the New World. While translating Cullen's *Materia Medica* into German in 1790, Hahnemann began to doubt Cullen's explanation of how Peruvian bark was effective in the control of fevers, such as those resulting from malaria. Hahnemann undertook an experiment by administering the drug to himself and noted symptoms similar to those of the same intermittent fevers. When he stopped taking it, the symptoms vanished.[3] Thus, Hahnemann set forth on the track of what he called the "law of *similia*," expressed in the Latin dictum, "*Similia similibus curantur*" (like cures like).[4] Peruvian bark (or cinchona) became Hahnemann's first homeopathic remedy, often known as "china" in the homeopathic lexicon. In stronger doses the medicinal derivative of Peruvian bark is the alkaloid quinine.

Hahnemann continued his experiments by administering still other drugs to himself and noting the symptoms. He also resumed his practice. After Hahnemann announced his experiments and success in treating patients in a paper written in 1796, other physicians began testing drugs in their own bodies in the same way. For the first time, Hahnemann's followers believed, they had a system of therapeutics based upon experiment rather than random choice. Hahnemann reported precedents for the "law of *similia*" in the writing of the great physicians, beginning with Hippocrates.[5] In the sixteenth century, Paracelsus had come close to stating the same principle, but he had not developed it in the way Hahnemann did.

Another of Hahnemann's principles was what he called the "law of infinitesimals."[6] He contended that drugs administered in smaller doses were more potent than in larger ones. Accordingly, homeopathic dilutions were usually made by a factor of 10, indicated by multiples of the Roman numeral X. A dilution of one in 10 was designated 1X, one in 1,000 as 3X, one in 1,000,000 as 6X, etc. More minute dilutions were often made on a centesimal scale. (Hahnemann wrote extensively and developed other teachings as well, including the shaking of the diluted medicine as a means of activating the potency, a process he called "dynamization." Some ideas that were later abandoned by the main body of his followers continued to receive attention from their detractors.)

One of Hahnemann's most radical departures from the conventional wisdom was in his view of illness. Rather than seeing symptoms as the illness to be destroyed, Hahnemann regarded them as the body's response to the sickness and

Leaves of Aconitum napellus *(foreground) as well as other parts of the plant--excluding the root--were the raw materials for a tincture which became in turn the starting point in reaching any desired potency. The bottle at the left contains Aconite tincture 3X. A mortar and pestle were used in making triturations. (Photo courtesy of The Pearson Museum.)*

as clues to be followed in treating the patient. Inherent in his view was the stimulation of the body's own "vital force" to cure itself. In his *Organon of the Art of Healing*, Hahnemann described the vital force as something by which "all parts are maintained wonderfully in harmonious vital process, both in feelings and functions, in order that our intelligent mind may be free to make the living, healthy, bodily medium subservient to the high purpose of our being."[7] Homeopathic treatment was not a narrow system based on a single complaint but rather a broad approach suggested by a whole pattern of symptoms. Hahnemann wrote:

> Hence there is no discoverable part that can be removed from a disease for the purpose of restoring health, except the totality of its signs and symptoms. Hence, also, drugs manifest no other curative power except their tendency to produce morbid symptoms in healthy persons, and to remove them from the sick. Thus it follows, on the other hand, that drugs become curative remedies capable of obliterating disease only through their power of creating certain disturbances and symptoms; that is, by producing a certain artificial diseased condition, they cancel and exterminate the symptoms already present, *i.e.*, the natural diseased condition which it is intended to cure....[8]

Consequently, Hahnemann and his followers preceded a course of treatment with an extensive case history that included each patient's mental as well as physical state. With this information, the physician was ready to apply his knowledge of the symptoms associated with the entire spectrum of drugs in the homeopathic *materia medica*. He also relied on experience in administering the medicine to patients and the effects that had been observed. Hahnemann accused proponents of the existing medical systems of seeking simplistic treatments, and he believed they claimed proficiency in matters that were unknowable or even irrelevant. Rejecting the orthodox profession's way of classifying diseases, he grouped them instead according to the drugs used to cure them.

Homeopathic medicines, derived mostly from plants but also from the animal and mineral worlds, often would have been toxic in large doses. When a patient's symptoms resembled the pattern produced by a particular drug, it suggested to Hahnemann that drug matched the patient. He chose the word "homeopathy" from Greek roots meaning "same" and "disease" and referred to traditional physicians as "allopaths" from Greek roots meaning "other" and "disease," indicating the treatment of symptoms with contrary drugs.[9] Hahnemann and other homeopaths also referred to their colleagues in regular medicine as belonging to the "old school." From the start, Hahnemann's claims

of curing patients were greeted by skepticism or ridicule from critics who could not understand *why* homeopathy would work. The number of his adherents was to grow, however. Before his death in 1843, Hahnemann was known throughout the world, and homeopathy had become one of the fastest-growing movements in medical history.

HOMEOPATHY IN AMERICA

Said to have been assigned to write a book discrediting homeopathy, Constantine Hering instead became one of Hahnemann's most enthusiastic disciples. Dr. Hering immigrated to America in 1833 and later became known as the father of American homeopathy. However, he had been preceded by other homeopaths. The first is thought to have been Hans B. Gram, an immigrant who went back to his native Denmark to study medicine. He returned to New York City as a homeopathic physician in 1825. Dr. Gram's student, John F. Gray, opened his own practice in 1828.[10]

The arrival of homeopathy in America coincided with the decline of a type of herbal medicine known as Thomsonianism. Homeopaths may have benefited from the inroads made by the earlier practitioners, but their impact on the medical profession was considerably greater. At first, they were greeted mainly with curiosity, and Hahnemann in 1832 was granted honorary membership by the Medical Society of the County of New York.[11] A cholera epidemic in 1849 helped to sway both physicians and lay people toward homeopathy.[12] As homeopathy gained influence, alarm spread in the regular profession. Unlike Thomsonians, the early homeopaths were as well or better educated than physicians in orthodox medicine; indeed, significant numbers were converts from that persuasion.[13]

More receptive to homeopathic thinking was the school of medicine known as eclecticism. Many eclectic doctors were either influenced by or converted to homeopathic ideas. Reflecting a widespread fear of orthodox medicine in nineteenth-century America, other alternate factions gained a following, including Neo-Thomsonians, Grahamites and hydropaths. The popularity of folk medicines and patent medicines was also fueled by this distrust, which was a factor later in the century in the spread of osteopathy, chiropractic and Christian Science.[14]

The homeopaths created the greatest disruption in the medical profession, however, because their system was based upon experiments and because many of them were highly respected.[15] Homeopathy also developed a following among the nation's wealthy and influential citizens disproportionate to its overall

Constantine Hering, ca. 1875. (Photo courtesy Hahnemann University Archives.)

strength. Many of the homeopaths were German immigrants, some of whom had received their training in Europe.[16] Within a few years, homeopaths were able to open their own medical schools and hospitals.

Hahnemann's philosophical bent imparted to homeopathy a spiritual dimension, and key elements of his teachings, such as the "life force" that is deranged by illness and stimulated in treatment, could be understood on more than one level. The belief that homeopathy was based upon the laws of nature appealed to people who felt nature was on the side of recovery.[17] As his ideas became known in the United States, some saw Hahnemann as the prophet of a spiritual renewal. Homeopathy found particular favor among Swedenborgians. Like homeopaths, those who embraced the Swedenborgian faith looked toward a union of nature and spirit, the appeal of which was great in the 1840s. Drs. Hering and Gram were among the early followers of both beliefs. Homeopathy also attracted prominent Transcendentalists, including Theodore Parker, Bronson Alcott, Elizabeth Palmer Peabody and Thomas Starr King. Through the Brook Farm community, a link also existed between the followers of Hahnemann and disciples of the French reformer, Charles Fourier. The same spiritual quality may have contributed to homeopathy's appeal to Mohandas K. Gandhi and its following in India.

HOMEOPATHY IN ILLINOIS

The introduction of homeopathy to Illinois came about through the acceptance of Hahnemann's beliefs by Dr. David S. Smith in 1843. Dr Smith had opened his practice in Chicago in 1838 and became interested in homeopathy a year later. His daughter is said to have been seriously ill and was helped only by homeopathic treatment.[18] Although he had been educated as a regular physician, Dr. Smith became an effective booster of homeopathy. He enlisted the support of Chicago leaders like J. Young Scammon, John Wentworth and William B. Ogden. Interest in homeopathy reached St. Louis about the same time and spread in Illinois from those two centers.[19] The first homeopathic physician between the two cities was Dr. Karl Ferdinand Kuechler, who had begun practicing in Germany, where he was acquainted with Dr. Constantine Hering.[20] Dr. Kuechler opened his office in Springfield in 1846 and continued to practice there for many years.

Dr. Smith founded and served as the first president of the Illinois Homeopathic Association. He was also instrumental in founding the Hahnemann Medical College in 1860. Five years earlier, he had enlisted the help of Abraham Lincoln, then a Springfield attorney, in obtaining a charter from the legislature.[21]

The first classes at Chicago's Hahnemann Medical College took place in rooms over the Halsey and King Pharmacy on South Clark Street. When larger quarters were needed, the institution was moved to State Street in 1866. The school obtained its own hospital facilities in 1870, and a college building was constructed in 1871. Its last college building was completed in 1893, at what was to become 2911 Cottage Grove Avenue, a site now inside the Michael Reese Medical Center.[22]

In 1876 a group of doctors withdrew from Hahnemann Medical College to form the Chicago Homeopathic Medical College at Michigan Avenue and Van Buren Street.[23] In 1881 this institution was moved to a new building directly opposite Cook County Hospital, where it remained until 1905. It then was merged back into Hahnemann. Two other medical colleges were organized in Chicago to teach homeopathy in the 1890s--the Hering Medical College and the National Homeopathic Medical College.[24] The Dunham Medical College of Chicago was organized by a faction that differed with the faculty of the Hering Medical College but which later combined with that school.[25]

Homeopathy flourished in Chicago to such an extent that between 1857 and 1859, forty percent of all the homeopaths in the world were said to be located in the Cook County area.[26] By 1905 more homeopathic physicians had been educated in Chicago than in any other American city.[27] More than 500 of the state's physicians were homeopaths.[28] Several homeopathic medical journals were published in Chicago.

The first homeopathic pharmacy in Illinois was opened by Dr. Smith in his office in 1844.[29] Dr. George E. Shipman started a homeopathic pharmacy in Chicago shortly before the Civil War and later sold it to C. S. Halsey. Founded by Urban J. Ehrhart and L. W. Karl, Ehrhart and Karl opened in the Loop in 1912; early in its history, the firm was one of three homeopathic pharmacies in Chicago.[30] It continues to operate after two changes in ownership in the last two decades. Some physicians also prepared their own homeopathic medicines or ordered them from pharmacies in St. Louis or other cities. Of several homeopathic colleges in St. Louis, one was founded by Dr. John Taylor Temple, who also became the first physician to perform an autopsy and give medical testimony in Chicago.[31]

Standards for the preparation of homeopathic drugs are contained in the *Homeopathic Pharmacopeia of the United States*. One such medicine is *Crataegus* (hawthorn berries). Ehrhart and Karl would obtain a permit from the Chicago Park District to gather the fruits of hawthorn trees in Lincoln Park in the fall. By spreading drop cloths on the ground, it was possible to collect from

Engraving of David S. Smith, M.D. (Reproduction courtesy of Hahnemann University Archives.)

100 to 200 pounds, a year's supply, in a matter of minutes. A 1X tincture was made in three-gallon batches. Thirty-six ounces of dried crude berries were ground, after being softened and drained, and combined with 285 ounces of 95% ethyl alcohol and 165 ounces of water, the liquid that was removed earlier being added to the mixture. (The ratio of 12 ounces/gallon was the standard for plant material.) The solid matter was discarded and the 1X tincture used as the basis for dilutions and making tablets. Each liquid dilution was accompanied by succussion, shaking with 10 strokes. Further dilutions were made with 87% ethyl alcohol. If tablets were to be made from a 1X tincture, it would be used in the ratio of 70 minims (a minim is $^1/_{60}$ fluid dram or close to one drop) per pound of milk sugar to make 3X tablets. One and one-eighth ounces of liquid, consisting of 30% alcohol, were required to wet a pound of milk sugar. Small amounts of gum acacia and confectioner's sugar were added to help in binding. Insoluble medicines were diluted by trituration (grinding).[32]

As homeopathy took root in America, native plants were added to the medicines used in treatment and were made available to physicians elsewhere in the world. Old World plants were also cultivated here for use in homeopathic remedies. Homeopathic research continued to concentrate on symptoms produced by administering drugs to a healthy person, usually the physician conducting the research. This process is known to homeopaths as "proving" a medicine.

THE KARST FAMILY TRADITION

F. August Karst was born in Vehra, a small town near Erfurt, Germany, in 1853.[33] As a child he was given a medical book which he read diligently. When a medical emergency arose in the village one day, he applied the knowledge he had gained from the book until a doctor could be summoned. The doctor told him he had done just the right things. From that point on, August was determined to become a physician himself and later grew interested in homeopathy. Coming to the United States, he lived a year in Peoria, Illinois, before moving to Chicago, where he studied at Hahnemann Medical College and was graduated in 1887. Ten years later he received a second medical degree from Harvey Medical College in Chicago. The same year, 1897, his son, F. Arthur Karst, who was later to become a physician, was born. August was joined in practice by Arthur, who had attended Hahnemann and was graduated in 1923 from a successor institution, the General Medical College. The Drs. Karst, some of whose medicines and equipment recently were donated to The Pearson Museum, were well known as homeopathic physicians practicing in the Masonic Temple, later called the Capitol Building, at 159 North State Street in Chicago.

Homeopathic kits for home use, while criticized for promoting self-medication, accelerated the spread of Samuel Hahnemann's ideas in nineteenth-century America. This case occupied a prominent place in the Diller Drug Store in Springfield, Illinois. Records from the store indicate that Abraham Lincoln was a frequent user of the products. (Photo courtesy of The Pearson Museum.)

A new patient typically would spend considerable time with the doctor, and it was customary for either of the Karsts to devote a half hour or more to each patient, even on repeat visits. Medicines were dispensed in homeopathic vials, usually two drams, and capped with a cork. The cork was marked with a Roman numeral to correlate the particular medicine with the instructions for its use. The patient was given instructions, usually verbal, as to the dosage and frequency. Particularly in acute cases, the patient might be instructed to dissolve a quantity of the tablets in water and then take one or two teaspoonsful at frequent intervals, such as every fifteen minutes. Recordkeeping was an essential part of homeopathic practice as a means of monitoring the patient's progress and the effects of the remedies.

The Drs. Karst generally dispensed standard doses of homeopathic medicines and rarely turned to high potencies. High-potency medicines are even more highly diluted and are usually granules smaller in size than the standard tablets. Medicines were also available in pellets or globules, disks and powder, which sometimes was used for triturations of substances not readily soluble. If the remedy was not available except in a tincture, it would be diluted to the desired potency in alcohol and poured into a vial over plain milk sugar pills, which the patient would take in the usual way. Unlike some followers of Hahnemann, who believed in using only a single medicine at a time, the Drs. Karst often would dispense a combination of two or more homeopathic remedies. Often they dispensed more than one set of pills, but they occasionally gave a combination tablet. One such tablet prepared by Ehrhart and Karl was identifiable by its pale pink color. Consisting of *Mercurious iodatus ruber* 2X (bin-iodide of mercury) *Kali bichromicum* 3X (bichromate of potash), *Belladonna* 2X (deadly nightshade) and *Phytolacca* 2X (poke-root), it was often given to patients who complained of sore throat and cold symptoms.[34] The senior Dr. Karst introduced from Germany an iron tonic, known as *Ferrum Tonicum* (Latin for "iron tonic") or "Hensel's Tonic," later prepared by Ehrhart and Karl. Other homeopathic remedies were available as salves and ointments.

Homeopathic physicians and their co-workers would refer to the medicines with a sort of verbal shorthand, abbreviating the often two-word Latin names. Thus *Rhus toxicodendron* (derived from poison ivy) became "Rhus tox," *Natrum muriaticum* (chloride of sodium) became "Natrum mur" (rhymes with "pure") and *Kali phosphoricum* (phosphate of potassium) became "Kali phos."

In keeping with Hahnemann's advocacy of nutritious foods, the senior Dr. Karst manufactured, early in the century, a non-caffeinated tea and a non-caffeinated "coffee"--both made from ground-up cereal grains. The Drs. Karst were not in favor of strict health diets, however. For weight loss they

F. August Karst, M.D., was born in Germany and settled in Peoria and later in Chicago, where he was graduated from Hahnemann Medical College in 1887. (Photo courtesy of Frederick Karst.)

F. Arthur Karst, M.D., practiced with his father in Chicago's Masonic Temple Building after graduation from medical school in 1923. (Photo courtesy of Frederick Karst.)

The American Institute of Homeopathy met in 1923 in Atlantic City, New Jersey. Seated in the second row to the left of the legend, separated by two women, are F. August Karst, M.D. (wearing bow tie) and F. Arthur Karst, M.D. (Photo courtesy of Frederick Karst.)

recommended simply cutting back on all normal food rather than eliminating certain categories. Both physicians made house calls, which the senior Dr. Karst undertook by horse and buggy early in his practice.

The exclusive use of homeopathic medicines began to fade with improvements in drugs used by the regular profession. Most homeopathic medical schools, including Chicago's Hahnemann, came to include regular medicine in their curricula along with courses in the homeopathic *materia medica.* By the end of the nineteenth century, adherents of regular medicine had adopted a number of originally homeopathic treatments.[35] Some currently accepted measures are of homeopathic origin, such as the use of nitroglycerine tablets for *angina pectoris*, a practice introduced by Dr. Constantine Hering.[36] The coating of allopathic medicines with sugar to improve the taste is believed to have been another response to homeopathy. The modern practice of inoculation with materials derived from disease-causing organisms bears an obvious resemblance to Hahnemann's ideas. However, neither the orthodox follower of Hahnemann nor the researcher in regular medicine would probably admit to more than a superficial correspondence.

While both Drs. Karst remained convinced of the efficacy of homeopathic medicines, an antibiotic became a more attractive alternative in cases of acute infection than allopathic remedies available at the time of Hahnemann. The junior Dr. Karst would explain that the definition of a homeopathic physician was one who would choose the best remedy available for his patient. Homeopathic treatment offered hope, the Drs. Karst believed, even in cases in which there was no cure available from regular medicine. Frequently, the junior Dr. Karst would spend the evening reviewing the *materia medica* for a remedy that corresponded to a patient's set of symptoms.

Homeopathic thinking never ruled out surgery, although homeopathic physicians probably regarded it as the treatment of choice less frequently than did allopaths. With the exception of simple office procedures, the Karsts did not do surgery themselves but would refer a patient to a colleague who did, in cases where they thought it was indicated. A consultation frequently was held when surgery was considered. Both physicians routinely referred patients for diagnostic tests and X-rays, and they themselves did simple tests like urinalysis.

The Karsts practiced until they died, the senior physician in 1936 and the junior in 1963. They were active in homeopathic medical groups, including the American Institute of Homeopathy. The junior Dr. Karst served as an officer of

the Chicago Homeopathic Medical Society. Both also became members of the American Medical Association.

High-potency dosages were favored particularly by physicians who followed what they regarded as a purer form of the Hahnemannian tradition. Some of these homeopaths rejected any use of allopathic treatment. For a prolonged period, the homeopathic profession was split, with the more flexible homeopaths following the American Institute of Homeopathy and their more conservative brethren adhering to a group called the International Hahnemannian Association. Formed in 1880, the latter group was not disbanded until 1960.[37] The split contributed to the creation of break-away medical colleges near the turn of the century.

A DIVIDED PROFESSION

During the height of controversy over the direction of American medicine in the nineteenth century, the leaders of the regular profession did their best to stamp out homeopathy, not only by denying membership in the AMA and local societies to homeopaths, but also by forbidding consultation between their followers and homeopaths. The AMA was organized in 1846, two years after the American Institute of Homeopathy, and if opposition to homeopathy was not the reason for its founding, that goal occupied much of its attention at the outset.[38]

Regular medicine in the United States had been strongly influenced by Benjamin Rush, who had been a student of William Cullen. Early in the nineteenth century, most physicians in the mainstream of American medicine thought that diseases were either sthenic (due to inflammation) or asthenic (from a weakening of stimuli). Sthenic diseases were treated by bleeding or purging and asthenic diseases with stimulants like opium. Dr. Rush, who believed one condition followed the other, prescribed a single system of treatment in which purging and phlebotomy were seen as indispensable.[39] Thus, orthodox medicine in this country was at odds with the mild treatments that were the hallmark of homeopathic innovation.

One of the most effective attacks against homeopathy came in a pamphlet written in 1842 by poet Oliver Wendell Holmes, who was also a physician of considerable renown. Ridiculing homeopathic dilutions and scoffing at the claims of cures, Holmes wrote: "Nobody doubts that *some* patients recover under every form of practice. Probably all are willing to allow that a large majority, for instance, ninety in a hundred, of such cases as a physician is called to in daily practice, would recover, sooner or later, with more or less difficulty, provided nothing were done to interfere seriously with the efforts of nature."[40] It was an

argument that could have been used as well against allopaths, who had not been known for trusting the body's capacity to cure itself. The attack brought several replies. Dr. A. H. Okie answered in a pamphlet that used both humor and reason to counter the charges.[41] While the reply earned the respect of some readers, Okie did not receive the attention given to the better-known writer.

One of the first actions of the American Medical Association was adoption of the code that stated, "No one can be considered as a regular practitioner, or a fit associate in consultation, whose practice is based upon an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology, and organic chemistry."[42] Homeopaths felt they were victims of ignorance and bigotry, and they frequently found a sympathetic ear among the press and public. Homeopath and allopath alike turned to vituperation.

Over several decades the AMA forced compliance with its proscription against consultation with homeopaths upon its constituent societies. In a similar vein, the AMA barred its membership to women (in 1860) who were otherwise qualified.[43] Women came to be accepted at homeopathic colleges on an equal basis with males earlier than at colleges allied with the regular profession. F. August Karst's class at Hahnemann, for example, included at least 24 women among 91 students.[44]

Hahnemann's teachings had not taken account of infectious organisms as a cause of disease, although homeopathy was not in direct conflict with such discoveries. Many homeopaths initially rejected the idea that germs produced disease, but in this regard they were not alone. Prominent American surgeons in the regular profession had not adopted antiseptic surgical techniques more than a decade after the introduction of carbolic acid in Europe by Professor Joseph Lister in 1865.[45] In Chicago, Dr. Bayard Holmes, a recent graduate of the Chicago Homeopathic Medical College, was ridiculed when he undertook the first significant laboratory work in the city--in the washroom of Cook County Hospital.[46] Besides suffering the jibes of his contemporaries, Dr. Holmes faced more practical ostacles: he had to import agar-agar from abroad because none was yet available in this country.

The first homeopathic hospital in Chicago had been founded by Dr. George E. Shipman in 1854.[47] By 1905 the Chicago Baptist Hospital, the largest denominational hospital in the city, had an entirely homeopathic staff. A homeopathic emergency hospital was set up in Chicago for the 1893 World's Columbian Exposition.

Near the turn of the century, Dr. F. August Karst, shown on the porch with two of his daughters, had his office in his home at 636 Sedgwick Street, Chicago (now 1934 Sedgwick). The house is still standing. (Photo courtesy of Frederick Karst.)

In Illinois, as elsewhere, homeopathic physicians sought access to public hospitals. Despite support from Horace Greeley, editor of the New York *Tribune*, and other prominent voices, the homeopaths had failed to share in the staffing of New York City's Bellvue Hospital.[48] The initial effort in Chicago was also defeated, and the first City Hospital was kept closed in 1857 through the refusal of allopaths to allow a portion of it to be used by homeopathic physicians.[49] Leading the allopaths who balked at the prospect of including homeopaths was Dr. Nathan S. Davis, one of the founders of the AMA. In 1850 a student of Rush Medical College had been informed by the same Dr. Davis, as secretary of the faculty, that he could not graduate solely because he had accepted the principles of homeopathy.[50] A more receptive attitude toward regular medicine among homeopaths was not always welcomed by allopaths. The thought was rejected by Dr. Alonzo B. Palmer, who argued that homeopaths, by definition, could act only in accord with the "law of *similia*."[51]

ABSORPTION AND DECLINE

Nevertheless, the polarization of the profession slowly began to erode late in the century. Cooperation that had not been seen before took place in the relief efforts after the Chicago Fire in 1871. In 1881 the Cook County Commissioners recommended that a fifth of the Cook County Hospital be designated for homeopathic use. This time the regular physicians did not threaten to resign.[52] Dr. F. August Karst's graduation in 1897 from Harvey Medical College, an allopathic school offering evening classes, while he remained a practicing homeopath, might be seen as a sign that the barriers were weakening.

In 1902 the AMA issued an advisory document permitting local societies to accept all legally licensed physicians, and by 1904 the body was willing to admit any registered physician who "does not limit himself, either in his claims or in his practice, to any exclusive system."[53] The effect was to admit homeopaths who did not insist on saying that they were homeopaths. Many homeopaths were loath to accept this left-handed invitation, nor did adherents of regular medicine rally to a plea by its most respected practitioner, Dr. William Osler, to strike down the remaining barriers.[54]

The dedication of a Hahnemann Monument in Washington, D.C., on June 21, 1909, in the presence of President William McKinley, was a high point for homeopathic influence in the United States. In Scott Circle, a ten-minute walk from the White House, the monument was dedicated to what homeopaths "believe is true and best in medical science; it stands for honesty, for liberality, for tolerance; it stands for scientific medicine; and it stands for Homeopathy, whose light now illumines a new creation in bronze, dedicated, in the highest

sense, to humanity, and commemorating the triumph of genius and truth, enduring as the centuries."[55] Dr. F. August Karst was among more than 200 individual subscribers from Illinois who aided the erection of the monument. Most were physicians who practiced in Chicago or in some sixty suburban and downstate communities.

As tolerance for homeopathy grew, some homeopaths appealed to the AMA to look into their claims of cures. The appeal was never acted upon.[56] The AMA view was still that homeopathy was not worthy of investigation. Although Hahnemann himself had been eager to experiment, many homeopaths in the twentieth century were reluctant to try new approaches, even to the extent of proving new remedies. The AMA, with support from the pharmaceutical industry, continued to use its influence to impose uniformity on the profession, including medical education.[57] The number of homeopathic medical schools fell sharply early in this century, through closings and the dropping of homeopathic instruction. Chicago medical schools not affiliated with major universities had difficulty surviving. Hahnemann Hospital outlasted the medical school and other homeopathic institutions in the city.

Hahnemann Medical College in Philadelphia, once the largest homeopathic school in the world and the last American college bearing the founder's name, dropped required courses in homeopathy in 1945, and in 1959 the last elective courses in homeopathy were discontinued.[58] The school maintains the Hahnemannian tradition of research and experiment, but the path is no longer separated philosophically from institutions founded in the tradition of regular medicine. The last U.S. medical school to teach homeopathy, the Philadelphia institution epitomizes the absorption of a major part of American homeopathy into the regular profession.

By the 1960s there were just a few practicing homeopathic physicians in Illinois. The number has continued to decline. Today the American Institute of Homeopathy has about a hundred members nationally, and some 200 to 300 additional licensed medical doctors, osteopaths and dentists practice homeopathy.[59] Some naturopaths and chiropractors also use homeopathy in their practices. Among the remaining homeopathic physicians, the proportion of high-potency practitioners is greater than in the past.[60] In Europe, homeopathy is strongest in France, where it is part of the state medical system. It flourishes in India, and Mexico has two homeopathic colleges.

Homeopathic medicines in the *Homeopathic Pharmacopeia of the United States* are recognized as drugs and have legal sanction under the 1938 Food, Drug and Cosmetic Act.[61] The appeal of a more holistic approach to life, which

gained such popularity in the 1960s, has stimulated new interest in homeopathy, along with health foods and antipathy to strong chemicals. A greater availability of homeopathic medicines has not always been accompanied by the careful supervision of treatment by a physician as originally insisted upon by Hahnemann.

CONCLUSION

Dr. Morris Fishbein, a Chicago physician and associate editor of the *Journal of the American Medical Association*, who had frequently attacked homeopathy, acknowledged in a 1924 magazine article that homeopathy had shown that small doses were superior to large ones and that patients should be dealt with as individuals. He even credited Hahnemann with showing the importance of testing drugs in actual use.[62] Other writers in the allopathic tradition now acknowledge that patients in the nineteenth century would have fared better in the care of homeopaths than with allopathic treatment. They reason that homeopathic doses were so small that they would have no effect other than as placebo, while the harsh treatments of regular medicine were genuinely dangerous.

Passages about homeopathy in recent histories of American medicine resonate with a similar pattern, and the subject is usually disposed of in a few pages. Most physicians of today have little or no exposure to Hahnemann's ideas. Essentially the same view of homeopathic dilution propounded by Oliver Wendell Holmes was expressed in updated terms by Harold J. Morowitz, professor of molecular biophysics and biochemistry at Yale University, in a recent article.[63] Homeopathic theory conflicts with the most basic principles of physics and amounts to "scientific nonsense," in Morowitz's judgment. William A. Tiller, professor of materials science and engineering at Stanford University, offers a theoretical model for dilutions employed in homeopathy on the basis of electromagnetic energy fields and calls for experiments on the way to developing a new physics.[64]

Ironically, the first significant "double-blind" tests of homeopathic treatment did not take place until homeopathy had ceased to be a major force. The tests, which were performed in Great Britain, have been interpreted as showing that patients treated both homeopathically and conventionally for rheumatoid arthritis fared better than a group receiving conventional treatment alone.[65] The reluctance of regular medicine to consider the merits of homeopathy is sobering in light of later admissions regarding the consequences of allopathic treatment. The principal toxic hazards today come not from toxic medicines but from the pervasive use of potentially dangerous substances all around us.

A physician's set of remedies packaged in portable cases for use during house calls reflects the range of medicines in regular use. (Photo courtesy of The Pearson Museum.)

Indeed, the danger levels of some of these pollutants are measured in quantities as minute as homeopathic dilutions that were ridiculed as insignificant.

One approach to the legacy of homepathy might be to re-examine the questions suggested by Hahnemann, and even those he rejected, in a contemporary context. Physicians in every generation might benefit from Hahnemann's insistence on matching the treatments to the patients and considering patient needs beyond the specific complaint that brought them to seek help. Finally, one might reflect upon the place of Hahnemann himself in medicine. No ideas with roots in the eighteenth century have so disrupted the medical profession and excited passions so deeply years later as the system Dr. Hahnemann began to formulate during his wanderings nearly two centuries ago.

NOTES

1. Richard Haehl, *Samuel Hahnemann: Sein Leben und Schaffen* (Leipzig: Dr. Willmar Schwabe, 1922), I, 57-70.

2. *Ibid.*, 49.

3. *Ibid.*, 42-45.

4. *Ibid.* Hahnemann added "*curantur*" to "*similia similibus*" (like with like) in 1810, 75-76.

5. *Ibid.*, 90.

6. *Ibid.*, 340-360.

7. Samuel Hahnemann, *Organon of the Art of Healing,* trans. C. Wesselhoeft, 5th American ed. (New York and Philadelphia: Boericke & Taffel, 1883), 67.

8. *Ibid.*, 72.

9. Haehl, *op. cit.*, 76.

10. Martin Kaufman, *Homeopathy in America: The Rise and Fall of a Medical Heresy* (Baltimore: The Johns Hopkins Press, 1971), 28.

11. *Ibid.*, 32.

12. Joseph F. Kett, *The Formation of the American Medical Profession: The Role of Institutions,* 1780-1860 (New Haven: Yale University Press, 1968), 138.

13. Kaufman, *op. cit.*, 29.

14. Thomas N. Bonner, *Medicine in Chicago 1850-1950: A Chapter in the Social and Scientific Development of a City* (Madison, Wis.: The American History Research Center, 1957), 204-205.

15. Kaufman, *op. cit.*, 29.

16. Harris L. Coulter, *Divided Legacy: The Conflict Between Homeopathy and the American Medical Association*, 2nd ed. (Berkeley: North Atlantic Books, Homeopathic Educational Services, 1982), 102.

17. For a discussion of homeopathy's spiritual side, see Kett, *op. cit.*, 139-140 and 148-155.

18. The Illinois State Medical Society, *History of Medical Practice in Illinois,* I, Lucius H. Zeuch, ed. (Chicago: The Book Press, Inc., 1927), 244.

19. Madge E. Pickard and R. Carlyle Buley, *The Midwest Pioneer: His Ills, Cures & Doctors* (New York: Henry Schuman, 1946), 213.

20. William Harvey King, ed., *History of Homeopathy and Its Institutions in America* (New York and Chicago: The Lewis Publishing Company, 1905), I, 356.

21. The Biographical Publishing Corporation, *History of Medicine and Surgery and Physicians and Surgeons of Chicago* (Chicago: 1922), 200.

22. *Ibid.*, 201-202.

23. *Ibid.*, 215-216.

24. The Illinois State Medical Society, *op. cit.*, 453-454.

25. King, *op. cit.*, III, 118-122.

26. *Ibid.*, 213.

27. King, *op. cit.*, 345.

28. *Ibid.*, 347.

29. The Illinois State Medical Society, *op. cit.*, 242.

30. Telephone interview with Lucille Ehrhart, former owner of Ehrhart & Karl, 11 February 1988.

31. Pickard and Buley, *op. cit.*, 216.

32. Personal interview with William M. Smalley, former manager of Ehrhart & Karl, 13 March 1988.

33. This account is based on the author's own knowledge and family sources.

34. For remedies and associated symptoms, see William Boericke, *Pocket Manual of Homeopathic Materia Medica Comprising the Characteristics and Guiding Symptoms of All Remedies,* 9th ed. (Philadelphia: Boericke & Runyon, 1927).

35. Coulter, *op. cit.*, 258-276.

36. *Ibid.*, 264.

37. Kaufman, *op. cit.*, 181.

38. Coulter, *op. cit.*, 181-182.

39. Kett, *op. cit.*, 156.

40. Oliver Wendell Holmes, *Homeopathy and Its Kindred Delusions: Two Lectures* (Boston: William O. Dicknor, 1842), 53. Critics of homeopathy tended to emphasize the most extreme dilutions and ignore the fact that many medicines used by homeopaths were more concentrated.

41. A. H. Okie, *Homeopathy: With Particular Reference to a Lecture by O. W. Holmes, M.D.* (Boston: 1842) as noted in Kaufman, *op. cit.*, 41-43.

42. *Proceedings of the National Medical Conventions Held in New York, May, 1846, and in Philadelphia, May, 1847* (Philadelphia: The American Medical Association, 1847), 100.

43. Kaufman, *op. cit.*, 77.

44. Class list in author's possession.

45. James Bordley III and A. McGehee Harvey, *Two Centuries of American Medicine : 1776-1976* (Philadelphia: W. B. Saunders Company, 1976), 40-41.

46. Bonner, *op. cit.*, 37. Dr. Holmes wore the mantle of homeopathy with discomfort because of his isolation from the regular practice of medicine. Bayard T. Holmes, "Medical Education in Chicago in 1882 and After," *Medical Life* N.S. *28*, 405 (New York: 1921). After his switch to the regular profession, he was invited in 1888 to present the first course in bacteriology at the Chicago Medical College.

47. The Illinois State Medical Society, *op. cit.*, 242.

48. Kaufman, *op. cit.*, 65-67.

49. The Illinois State Medical Society, op. cit., 241.

50. *Ibid.*, 240.

51. A. B. Palmer, "The Fallacies of Homeopathy," *North American Review*, March 1882, 312.

52. Kaufman, *op. cit.*, 150-151.

53. "Queries and Minor Notes," *Journal of the American Medical Association (15 October 1904),1158.*

54. Kaufman, *op. cit.*, 156.

55. Eugene H. Porter, editorial, *North American Journal of Homeopathy,* June 1900, quoted in *Historic Sketch of the Monument Erected in Washington City* (Washington: American Institute of Homeopathy,1900), 81.

56. Kaufman, *op. cit.*, 157-158.

57. Coulter, *op. cit.*, 402-419 and 446.

58. Telephone interview with Barbara Williams, Hahnemann archivist, 25 January 1988.

59. Telephone interview with William Shevin, M.D., president of the American Institute of Homeopathy, 8 February 1988.

60. Coulter, *op. cit.*, 513. Smalley interview. Recent thinking calls for high potencies for chronic ailments and lower potencies for acute conditions. Telephone interview with B. Williams, 9 March 1988. Conversions to homeopathy from the regular profession continue. The National Center for Homeopathy offers summer courses in homeopathy for physicians.

61. Coulter, *op. cit.*, 303.

62. Morris Fishbein, "The Rise and Fall of Homeopathy," *American Mercury* (June 1924): 152.

63. Harold J. Morowitz, "Much Ado About Nothing," *Hospital Practice* (July 1982) : 215-216.

64. William A. Tiller, "Homeopathy: A Laboratory for Etheric Science?" *Journal of Holistic Medicine*, Spring/Summer 1983, 25-53, and "Towards a Scientific Rationale of Homeopathy," *ibid.*, Fall 1984, 130-147. Molecular models for an understanding of homeopathy have also been proposed in India. See R. R. Sharma, *Molecular Homeopathy or Molecular Biophysics of the "Micro" Dose: Elucidating Homeopathic Principles via Molecular Mechanisms* (New Delhi: Falcon Books, Cosmo Publications, 1984).

65. R. G. Gibson *et al.,* "Homeopathic Therapy in Rheumatoid Arthritis: Evaluation by Double-Blind Clinical Therapeutic Trial," *British Journal of Clinical Pharmacology 9* (1980): 453-459. See also David Taylor Reilly *et al.,* "Is Homeopathy a Placebo Response?" *The Lancet* (18 October 1986): 881-886.

The British journal, *Nature*, announced June 30, 1988, that it will investigate recent findings reported at five separate laboratories in Canada, France, Israel and Italy that involve reactions of antibodies, with certain body cells, in dilution so minute that the process defies physical explanation. If substantiated, the findings obviously could lend support to homeopathy.

Clover Leaf Cereal Coffee was manufactured by Dr. F. August Karst early in the century. (Photo courtesy of Frederick Karst.)

AUTHOR

Frederick Karst is the son and grandson of homeopathic physicians. Reared in Park Ridge, Illinois, he holds degrees in general studies and in biology from the University of Chicago and in German from Indiana University at South Bend. He has been a reporter for the City News Bureau of Chicago and the Logansport, Indiana, *Press*, city editor of the Morris, Illinois, *Daily Herald* and a copy editor of the South Bend, Indiana, *Tribune*, where he currently is an editorial writer and the travel editor. Mr. Karst's writing has received several awards, including the Founder's Award for the best overall travel writing presented in 1987 by the Midwest Travel Writer's Association for a series of articles about three southern Indiana towns--New Harmony, Corydon and Madison. His historical articles frequently deal with nineteenth-century communal groups and rural history. Mr. Karst lives on a North Liberty, Indiana, farm with his wife and four sons.

Hahnemann University in Philadelphia is the only American institution of higher education still bearing the name of the founder of homeopathy. It was also the last U.S. medical school to teach homeopathy. (Photo courtesy of Hahnemann University Archives..)

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A medicine cabinet used by F. Arthur Karst, M.D., contains a wide assortment of homeopathic remedies, principally low potency tablets manufactured in Chicago by Ehrhart & Karl. (Photo courtesy of The Pearson Museum.)

Joseph-Frédéric-Benoît Charrière (1803-1876). (Photo courtesy of Bibliothèque Nationale, Paris.)

*Joseph-Frédéric-Benoît Charrière (1803-1876): Paris Surgical Instrument Maker from Switzerland**

Urs Boschung

Given that the original meaning of the term "surgery" is "manual labor," one might suppose that the development of surgical instruments would be of considerable interest to the historian of medicine and surgery. However, instruments are all too often ignored. They are dealt with as a matter of course, as insignificant; or, in other words, the technical side of surgery is simply eschewed. If, on the other hand, one accepts instruments as a source of information with status equal to that given to books or other documents, then we are compelled to grant them our most serious attention. With such an approach, however, one must be able to address the following questions: when and where were these objects made? If they are signed, the maker's name can help us (on the condition, of course, that one knows where and when the maker lived and worked, etc...).[1]

It is interesting and relevant to gather information about the collaboration between surgeon and instrument maker. Occasionally, such a collaboration is mentioned in the preface of surgical texts. The French surgeon Garengeot (1688-1759), for example, noted that the cutler [coutelier] making surgical

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* This is a translation by James Edmonson of an article which originally appeared in *Schweizereische Rundschau für Medizin (PRAXIS) [PRAXIS: Swiss Review of Medicine], 74, 8* (1985): 181-184. The article appears in *Caduceus* with the kind permission of the editors of *PRAXIS*, in Bern.

instruments needed considerable guidance from the surgeon.[2] Albert de Haller (1708-1777) tells us that the famous Parisian cutler Vigneron "at the ace of spades" won a case against Garengeot, who had attempted to appropriate the artisan's inventions.[3] Elsewhere, visits to surgical instrument stores and workshops were recommended to medical and surgical students, well into the nineteenth century. At that time, *acologie*, or the science of instruments, was part of surgical instruction and several universities possessed rich collections of instruments.[4]

What sources can provide information about the history of instrument makers? First, of course, are the instruments themselves, if they are signed; for this reason, every illustration caption should mention the maker's name if it is marked on the artifact.

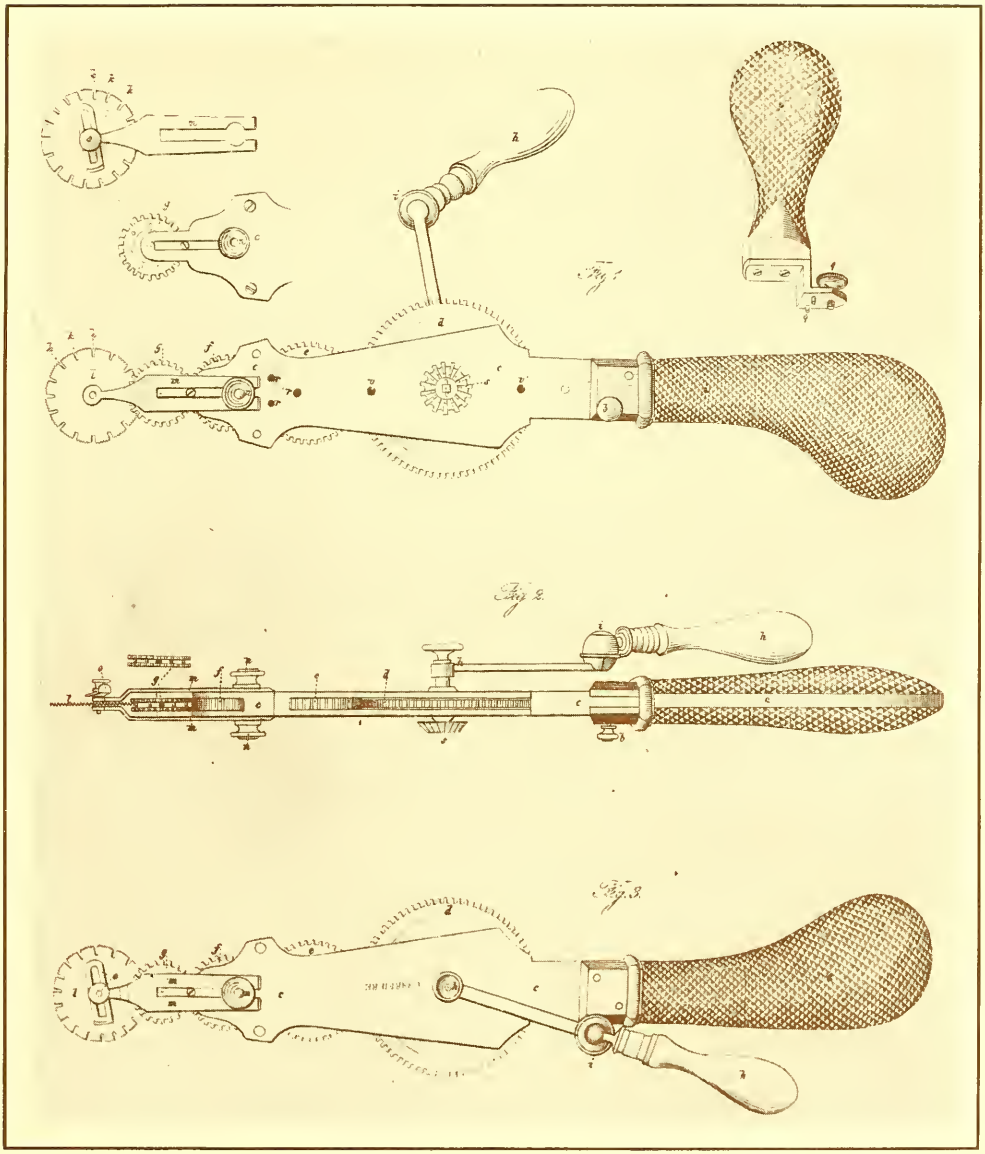
A second source lies in illustrated works, be they of surgery (i.e. Scultetus, Dionis, Heister, Petit, etc., [5]), or of instruments (i.e. Garengeot [6], Perret [7], Brambilla [8], Henry [9], Blasius [10], Seerig [11], Feigel [12], Gujot and Spillmann [13], etc.).

Catalogues and price lists together constitute the most fundamental source. The difficulties plaguing their usefulness are evident: they are quite rare, dating in general only from the late eighteenth century; and, until the mid-nineteenth century, they were not illustrated. Moreover, they are seldom dated. To conclude this listing of sources, I would like to add "trade cards," commercial directories, exposition reports, etc.

What follows are the preliminary results of my research on the most renowned Parisian instrument maker of the nineteenth century.

Joseph-Frédéric-Benoît Charrière (1803-1876)[16]

As early as the seventeenth century, Paris was renowned for the production of surgical instruments. A 1565 charter granted to the cutlers' guild an exclusive monopoly of this trade.[17] Voltaire, in his *Siècle de Louis XIV*, affirmed: "Not only are there hardly any accomplished surgeons except in France, but this is the only country where the necessary instruments are made well."[18] In the eighteenth century, in addition to the cutler Vigneron mentioned above, Jean-Jacques Perret (1730-1784) was renowned, especially through his great illustrated work, *L'art du coutelier, expert en instruments de chirurgie* (Paris,



Rotary saws (scie à molettes) made by Charrière.(Reproduced from Robert Froriep, Chirurgische Kupfertafeln, *pl CCCCLXIX, Weimar, 1845.)*

1772).[19] At the beginning of the nineteenth century Percy praised the cutlers Lesueur and Sirhenry.[20]

In 1816, at the age of 13, Charrière arrived in Paris as an apprentice cutler. Born on 19 March 1803 at Cerniat en Gruyère, in the Swiss canton of Fribourg, where his uncle practiced the same trade, he was raised by his grandfather because his parents had moved to Paris, where his father was employed as a bank clerk. In 1820, after the death of his master, the young Swiss cutler took over the workshop, then situated in the courtyard of St.-Jean-de-Latran on the left bank of the Seine (gone today, as a consequence of urban development). In 1826, Charrière married Madeleine Elisa Berrurier, the seventeen-year-old daughter of a butcher.[22] According to the *Notice biographique* of Dr. Achille Chereau (1817-1885), the real commencement of Charrière's career dates from his introduction to Guillaume Dupuytren (1777-1839), surgeon-in-chief at the Hôtel Dieu hospital in Paris. Dupuytren made him "his personal supplier, furnishing him with models to emulate, instilling, feeding, in a sense, the spirit of invention and innovation that consumed him, bringing him every morning to the hospital to familiarize him with the operations and to stir his genius for designing instruments. Charrière appreciated from the very outset the advantage of seeing his instruments in action, in trying them or seeing them tried on cadavers."[23]

Under Dupuytren's patronage, Charrière's business affairs prospered. Beginning around 1825, according to Dr. Chéreau, "nineteen out of twenty surgeons consigned to him the fabrication of their ordinary instruments, as well as their experimental ones." Important orders came from French and foreign ministries and the Conseil général des hospices de Paris named Charrière principal contractor for prosthetic devices. In 1833 he moved the firms to no.9, rue de l'École-de-Médecine (today these premises are occupied by the Auzoux enterprise, maker of anatomical and natural history models). At the 1834 Exposition of national industry, Charrière received his first medal, which would be followed by innumerable other distinctions. The jury stated that, "rising from simple cutlery artisan, M. Charrière has become head of the largest and most important surgical instrument making establishment. He utilizes, with equal success, French and English steel. His instruments enjoy a reputation for excellence, even superiority, as proclaimed by many surgeons at our hospitals."[24] In 1837, during a visit to England, Charrière mastered the production processes of the British cutlery industry. From that moment on, he never again feared competition from across the Channel.

Praise lavished upon him in the published works of physicians and surgeons, in addition to that of expositions, augmented the renown of the instrument

maker. Alfred A.L.M. Velpeau (1795-1868), for example, illustrated many of Charrière's instruments in his *Nouveaux éléments de médecine opératorie.*[25] Similarly, in the work of Claude Bernard and Charles Huette,one finds only the instruments of the Charrière firm.[26]

At the close of 1842, the enterprise moved across the street, to no.6, rue de l'École-de-Medécine. The showroom and adjacent workshop were considerably more spacious. According to Dr. Chéreau, who knew Charrière quite well, "a large glass storefront facing the street permitted passersby to witness the magical transformation of steel; Dupuytren, personified by a bust of perfect likeness, seemed to continue his watchful protection and inspiration." There was also a "vast, intriguing museum assembled by Charrière, that embodied in material form his labor, his careful research, his invention, which he opened with well-deserved pride to the curious, to young surgeons fascinated with the progress of their art."[27]

The granting of permanent residency and naturalization in 1841 and 1843 guaranteed the success of Charrière in France.[28] At the age of forty he became a French citizen. Following the Exposition of 1843 he was named *chevalier* of the Legion of Honor and was promoted to the rank of *officier* in 1851, after the universal exposition of London.[29] Initially, Charrière had been proposed for the highest award at that exposition, but his name was stricken from the list of nominees for reasons yet unclear. The *Grand Larousse* of 1868 relates that on the occasion of a banquet at the Elysee palace, Louis-Napoleon, then prince-president of the Republic and later Emperor, exchanged his own diamond studded cross [of the Legion of Honor] with the one intended for Charrière, saying: "Permit this exchange; henceforth I will wear no other."[30] Charrière had become a national symbol of French industry.

In 1852 Charrière ceded management of the firm to his son Jean-Jules, born in 1829, whose inventions he defended in several publications.[31] In 1862, the latter was also named *chevalier* of the Legion of Honor.[32] In 1865, however, [Jean-Jules] died during an outbreak of cholera in Paris.[33] The father was obliged to enlist the collaboration of his former pupils, Robert and Collin, who published their first large catalogue in 1867.[34] The elder Charrière died on 28 April 1876. By the late 1870s it appears that Adolphe Collin had become the sole senior proprietor of the enterprise. His grandson Pierre Collin and his granddaughter's husband succeeded him. In 1930 the Collin establishment was acquired by the Gentile firm. The auction of the instrument and book collections of the Charrière, Collin, and Gentile enterprises took place in 1978 in Paris.[35]

THE OEUVRE OF CHARRIÈRE

For the present, we can offer only a summary assessment of Charrière's accomplishments. Let us mention first the general points. The jury of the 1839 Exposition of national industry speaks of "the dual relation of the application of science to industry and of industry to commerce."[36]

This refers to the close ties between instrument maker and surgeon, as well as the various technical processes pioneered by Charrière, such as the introduction of softened or malleable ivory [*ivoire ramolli*], the substitution of nickel silver alloy [German silver or *maillechort*] for silver, and the refinement of steel tempering techniques. In the application of industry to commerce, Charrière reduced product cost sufficiently to stimulate an important, extensive export trade. He achieved this through a division of labor and specialization among his workmen. "A dozen years ago (in 1827) there were barely thirty or forty surgical instrument craftsmen in Paris; (in 1839) Charrière alone employed over 150, including sixty in the shops beside his store; since each workman specialized in a particular process, they earned 3, 4, and 7 francs daily." Instrument sales attained an annual value of 400,000 francs in 1839.[37]

Five years later, in 1844, the workforce numbered about 80 to 90 in Paris and 150 to 200 at Nogent (near Langres); sales figures reached a half million francs, of which two thirds came from exports.[38] In the 1867 catalogue, a long list enumerated new production techniques, such as the stamping press, casting of metals, mass production, and so forth.[39] Quality control assured the reputation of the Charrière firm. The 1849 catalogue indicates that several years prior to 1844 "no article, no matter how humble, leaves our workshops without first being subjected to trials that exceed the most rigorous conditions of normal usage. This applies particularly to instruments whose functioning involves the exertion of pressure."[40]

This leads us to a consideration of Charrière's most notable technical achievements. "The mere enumeration of instruments invented or modified by Charrière...would be a colossal undertaking, far exceeding the limits of this review." This is the preliminary remark made by Dr. Chéreau in 1876, and it remains, understandably, valid today.

The most remarkable achievements of Charrière deserve mention here. He devoted his utmost attention to commonplace instruments, including for example, scalpels, scissors, forceps, and pocket cases [*trousses*]. His dressing forceps constitute the point of departure for the development of hemostatic forceps by Jules-Émile Péan (1830-1898) and his successors.[42] The tenon join,

first used in 1851, appears to have presaged the design of aseptic instruments.[43] As a specialist in all manner of syringes, Charrière was responsible for producing the [hypodermic] syringe of Charles-Gabriel Pravaz (1791-1853) in 1852.[44]

In urology, an emerging discipline in the first half of the nineteenth century, Charrière was quite active, particularly regarding lithotomy[45] and lithotrity.[46] As early as 1842, he created the famous gauge for calibrating sounds [*bougies*] and catheters; as a standard unit of measurement he selected one-third of a millimeter. This standard is still in use today.[47]

For resections, an important surgical procedure of the period, Charrière modified the chain saw of Heine and in 1834 created the circular saw [*scie à molettes*] which he combined with a trepan.[48] Today there are two types of amputation saws, the bow saw and the tenon saw; the latter still identified with Charrière's name.

In the domain of ophthalmic surgical instruments, a former protégé of Charrière, Georges-Guillaume-Amatus Lüer, seems to have surpassed his master. Lüer was born in Braunschweig (Brunswick), Germany, in 1802. (Braunschweig was also the homeland of John Weiss, founder of the celebrated London instrument making firm).[50] From 1830 to 1837, Lüer was Charrière's chief craftsman, and he subsequently opened his own business. He died in 1883, leaving the firm to his son-in-law H. Wülfing (born in Barmen, in Prussia).[51]

NOTES

1. Urs Boschung, "Chirurgiemechanik im 18. Jahrhundert--Der chirurgische Instrumentenmacher," *Medita 10* (1980): i-xiv. Elisabeth Bennion, *Antique Medical Instruments* (London/Berkeley and Los Angeles, 1979), Directory of Surgical Instrument Makers, pp. 304-42.

2. R.J. Croissant de Garengeot, *Nouveau traité des instruments de chirurgie* (Paris, 1723). I consulted the German edition: *Abhandlung von denen nützlichlichsten und gebräuchlichsten Instrumenten der Chirurgie....* (Berlin and Potsdam, 1729), preface (no pagination).

3. A. Von Haller, *Bibliotheca chirurgica....* (Berne and Basel, 1775), vol. 2, p.55: "[Garengeot] vir acris ingenii, qui primum alienis inventis inclaruit, tum chirurgorum Arnauld patris, & Thibault, tum artificis Vigneron As de Pique, bene mihi noti, qui ob instrumenta a se ipso perfecta, & a Gaerengeoto ursurpata, ad senatum provocavit, & obtinuit, ut chirurgus causa caderet." Garengeot [note 3, preface] praised the cutler Vigneron "at the trefoil." The existence of Vigneron of the Ace of Spades is proved by a tripod signed "Vigneron a Paris" with the Ace of Spades marking, which is found at the Musée de l'histoire de medécine de Paris (see Bennion [note 1], p. 36, fig. 29) and by Percy and Laurent "Instrument" [article in] *Dictionnaire des sciences medicales....* (Paris, 1818), vol. 25, p. 422.

4. Boschung [note 1], pp. iii-iv.

5. See Leslie T. Morton, *A Medical Bibliography* (Garrison and Morton) 4th ed. (London, 1983), pp. 755 ff.

6. See note 2.

7. J.J. Perret, *L'art du coutelier* (Paris, 1771); and *L'art du coutelier expert en instruments de chirurgie* (Paris, 1772).

8. G. A. Brambilla, *Instrumentarium chirurgicum Viennense....*(Vienna, 1781).

9. Henry, *Précis descriptif sur les instruments de chirurgie anciens et modernes* (Paris, 1825).

10. E. Blasius, *Akiurgische Abbildungen oder Darstellung der blutigen chirurgischen Operationen und der für dieselben erfundenen Werkzeuge* (Berlin, 1833); and supplement (Berlin, 1844).

11. A. W. H. Seerig, *Armamentarium chirurgicum oder möglichst vollständige Sammlung von Abbildungen and Beschreibung chirurgischer Instrumente älterer und neuerer Zeit* (Breslau, 1835-1838).

12. J. T. A. Feigel, *Chirurgische Bilder zur Instrumenten- und Operationslehre* (Würzburg, 1850 and 1853).

13. G. Gaujot and E. Spillmann, *Arsenal de la chirurgie contemporaine,* 2 vols. (Paris, 1867 and 1872).

14. M. Jones and J. Taylor, *A Handlist of Trade Catalogues and Associated Literature in the Wellcome Museum of the History of Medicine* (London, 1984).

15. Bennion [note 1], pp. 304-42; Ambrose Heal, *London Tradesmen's Cards of the XVIIIth Century,* 2d ed. (New York, 1968).

16. My research on J.F.B. Charrière was supported by a grant from the foundation "Jubilaumsspende für die Universität Zürich."

17. R. De Lespinasse, "Orfèvrerie..., ouvriers en métaux," in *Histoire générale de Paris. Les métiers et corporations de la ville de Paris, XIVe - XVIIIe siècle (Paris, 1892),vol. 2, pp. 387 ff.; A. Franklin, Les corporations ouvrieres de Paris du XIIe au XVIIIe siècle. Histoire, statuts, armoiries....* (Paris, 1884), "Couteliers," p. 6; and A. Franklin, *Dictionnaire historique des arts, métiers et professions excerces dans Paris depuis le XIIIe siècle* reprint ed. (Marseille, 1977), p. 403.

18. Voltaire, *Le siècle de Louis XIV,* chap. XXXIII.

19. See note 7.

20. Percy and Laurent [note 3], p. 422: "Lesueur, the elder, was in vogue, in consequence of Desault's preference for him.... However, we cannot pass over Sirhenry in silence, since it is he who the Faculté de médecine de Paris chose to care for its instrument collection.")

21. A. Chéreau, *Charrière: Notice biographique, extrait de la Bibliotheque universelle et Revue suisse* (Lausanne, 1876). Letter from the secretariat communal of Cerniat 28 June 1984.

22. Marriage Contract, 23 January 1826. Archives de Paris V. 2E: Marriages, 1826.

23. Chéreau [note], p. 7.

24. J.F.B. Charrière, extract from the Charriere catalogue, Paris, April 1842, p. v.

25. A.A.L.M. Velpeau, *Nouveaux éléments de médecine operatoire* (Paris, 1839), atlas.

26. Claude Bernard and Charles Huette, *Précis inconographique de médecine operatoire et d'anatomie chirurgicale* (Paris, 1853); German translation Leipzig, 1855-56; American edition, New York, 1855; Japanese edition, 1878.

27. Chéreau [note 21], p. 10 ff.

28. Archives nationales, Paris, BB 11 444.

29. Archives nationales, Paris, LH 496 d.58.

30. Pierre Larousse, *Grand Dictionnaire universel du XIXe siècle* (Paris, 1868), vol. 3, p. 1034.

31. J. Charrière, "Table de la plus grande partie des instruments nouveaux ou modification nouvelles. par J. Charrière," in F. Charrière, *Quelques rectifications a propos d'un jugement porté sur l'industrie couteliere a l'Éxposition universelle de Londres de 1862* (Paris, 1862), pp. 25-30.

32. Archives nationales, Paris, F 12 5107.

33. *Journal de medecine et de chirurgie pratiques*, 2d ser. 36 (1865): 480.

34. Robert et Collin, *Maison Charrière..., Catalogue avec planches, presente au jury de l'Éxposition universelle* (Paris, 1867).

35. A. Brieux, *Instruments et livres de chirurgie... provenant des anciennes collections des maisons Charrière, Collin et Gentile dont la vente aux encher es publiques aura lieu a Paris... le mardi 7 fevrier 1978* (Paris, 1978).

36. Charrière [note 24], pp. v-viii.

37. See note 36.

38. J.F.B. Charrière, extract from the Charrière catalogue, Paris, 1849, pp. 10-12.

39. Robert et Collin [note 34], pp. 156-60.

40. Charrière [note 38], p. 6, note 1.

41. Chéreau [note 21], p. 12.

42. J. Péan, *Du pincement des vaisseaux comme moyen d'hémostase* (Paris, 1877), p. 117; Robert et Collin [note 34], p. 18.

43. Robert et Collin [note 34], p. 11.

44. G. Despierres, "Un Lyonnais méconnu: Charles-Gabriel Pravaz. Inventeur de la seringue et de l'aiguille creuse et créateur de l'orthopedie médicale," *Conferences d'histoire de la médecine, cycle 82-83,* Lyon, Fondation Mérieux, p. 43, 1983.

45. G. Dupuytren, *Mémoire sur une maniere nouvelle de pratiquer l'opération de la pierre, termine et publié par J.L. Sanson et L.J. Begin* (Paris, 1836); German ed. (Weimar, 1837).

46. See for example Marjolin, "Lithotritie ou Lithotrypsie," *Dictionnaire de Médecine,* 2d. ed. (Paris, 1838), vol. 18, pp. 121-61; Velpeau [note 25], pl. 16, 17. A. Gadient, "Die Anfänge der Urologie als Spezialfach in Paris (1800-1850), Diss. med., Zürich 1963 (Zurcher medizingeschichtliche Abhandlungen, N.R. 13).

47. Charrière [note 24], p. 46; Aesculap, *Haupt-Katalog für die operative Medizin, General Surgical Catalogue* (Tuttlingen, 1982), p. 347.

48. A. Thomson, "Réponse à M. le Docteur Leguillon relativement aux scies à molettes," *Annales de la médecine physiologique* [Par F.-J.-F. Broussais] *26* (1834): 612-35.

49. Aesculap [note 47], p. 543 ff.

50. *250 Jahre C. M. Weiss Braunschweig* (Braunschweig, 1936).

51. Archives nationales, Paris, F 12 5197 (Appeals from M. and Mme. Lüer for the award of the Cross of the Légion d'honneur, 1851-1863); LH 1674 d.62 (Chevalier de la Légion d'honneur, 24 January 1863); BB 11 636 (admitted as resident 27 July 1853, naturalized 19 May 1881). Archives de Paris, V. 2E actes de marriage, 18 February 1837. G. G. A. Lüer married Cécile Caroline Schaal, born in Sainte-Croix, Switzerland.

TRANSLATOR'S NOTE: Dr. Boschung's research on Charrière first came to my attention in1984, when I heard him deliver his paper in French at the Second Symposium of the European Association of Museums of History of Medical Sciences. What a shame, I thought at the time, that only about half of the persons present could follow his presentation, particularly since there is so little original research on instrument makers. As my own interest in this field grew, I concluded that a translation was in order; the present version of Boschung's article is the result. My thanks go to several persons, including Glen Davidson, who welcomed this contribution so warmly,and to Linda Keldermans, who put up with the headache of editing a piece with so many foreign language sources. Specially helpful in matters of translation was my dear,late friend, Lydia T. Holian, whom we always turned to in matters of correctness and protocol at the Allen Memorial Library. Lydia, the Associate Director of the library, enlisted the help of Dzwinka Komarjanski, our Head of Reference, who kindly took the time to read and discuss the translation. Finally, thanks go to colleagues who kindly helped with photographs and descriptions of Charrière's instruments in this country: they include Judy Chelnick at the National Museum of American History; Elizabeth Young Newsom at the Waring Historical Library;and Billie Broaddus at the University of Cincinnati.

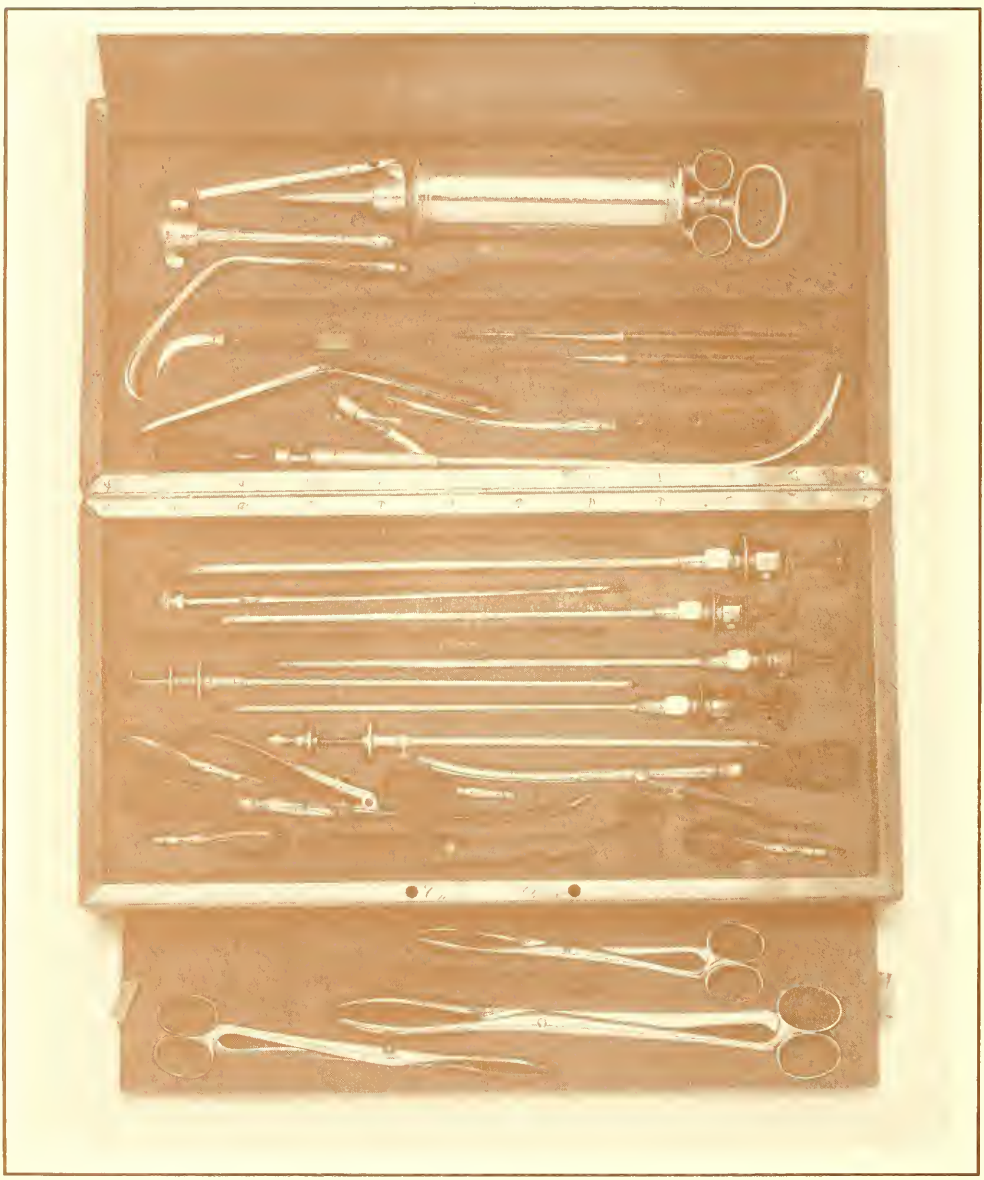
Charrière's Instruments in America

James M. Edmonson, Ph.D.

In the medical world of nineteenth-century America, surgical instruments made by Joseph Frédéric Benoit Charrière had no serious rivals. This, at least, seems to have been the general consensus among American physicians, particularly those who had visited Paris as students or travelled there after receiving their medical degrees. Possessing a Charrière instrument set imparted to the owner a certain *caché*, attesting as it did to his urbanity and well-travelled sophistication. This appeal, combined with undisputed technical excellence, made Charrière instruments highly desirable on this side of the Atlantic. The arrival of a shipment of instruments from Paris thus became a newsworthy event, as illustrated by the following excerpt from the *Boston Medical and Surgical Journal* of 1845:

> Beautiful Instruments. -- Mr. Jos. Burnett, apothecary of this city, Mr. Metcalf's successor, has just received from Paris, as may be seen by his advertisement, some very highly finished articles of surgical cutlery, manufactured by the well-known Charrière, rue de l'École de Médecine a Paris -- a famous calling place for American students while staying in that city. Some of the pocket-cases are uncommonly elegant, compact, and useful for every day business. The exploring needles and compound catheters are admirable. Partial as we are to home-made things, it would be unpardonable not to remind medical gentlemen of this recent importation.[1]

Charrière instruments retained their popularity in America from the 1840s through the 1880s, even beyond the death in 1876 of the firm's founder. While it is true that this period witnessed the coming of age of instrument making in America, there was still a persistent belief among surgeons here that European-made instruments were superior in design and finish. It could be argued that this belief stemmed from a general sense that Europe was still well in advance of America in the realms of art, science, and medicine, and therefore, European surgical instruments, too, must be somehow more refined and perfect. Surviving examples of Charrière instruments in American medical museum



Lithotomy and lithotrity instrument case, ca. 1833-1842. (Photo courtesy of Division of Medical Sciences, National Museum of American History, Smithsonian Institution. Accession No. 302606.)

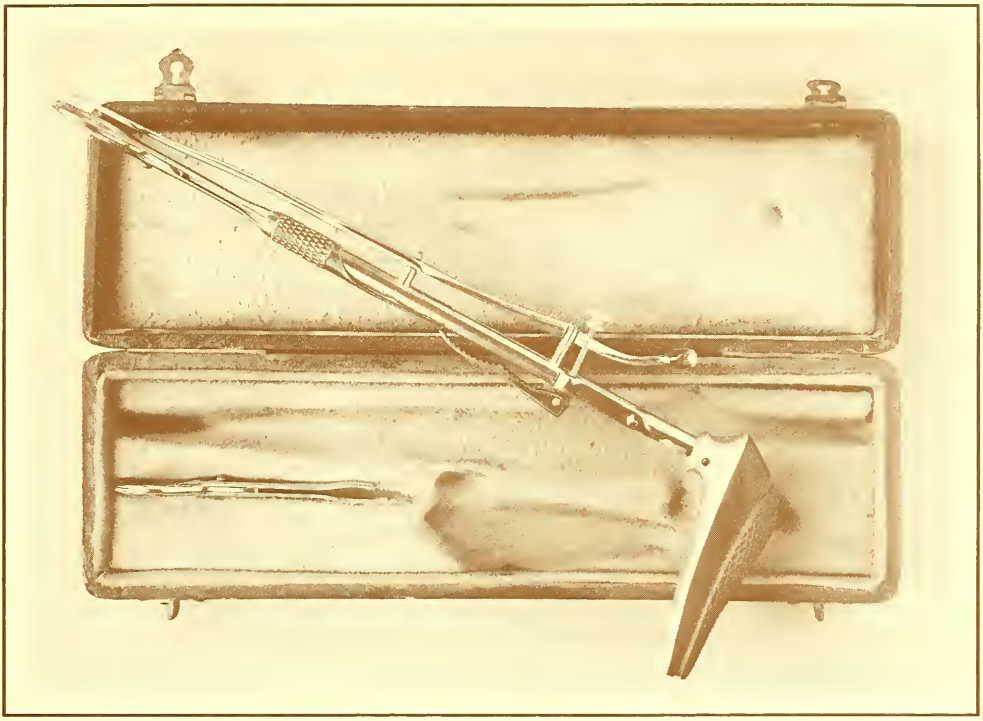
Mahogany case, brass corner straps, brass lock, and brass plate with handle on lid engraved "William T. Wilson/Baltimore;" brass strip inside front of case is engraved in script "Charrière a Paris;" interior of case is lined with rust-colored chamois. The majority of instrument blades and shafts are made of steel and have ebony handles; the syringe and irrigators are nickel-plated; all instruments are stamped "Charrière a Paris" and engraved "W.T.W.;" top third section of the case has an interior hinged lid, covered in rust-colored chamois with two brass catches and an oval red and gold paper label (not seen in photograph). Lid of case contains (front to rear) irrigator, syringe, irrigator, hooked gorget, large scalpel, double bladed knife, aponeurotome, gorget, scoop with blued metal interior, irrigator. Base of case contains (front to rear) lithotrite (Ferguson's), unidentified instrument, two lithotrites (Ferguson's) foreign body instrument, lithotrite (Ferguson's), trilabe (Hunter's), single bladed lithotome cache, double bladed lithotome cache, and four handles for rack and pinion mechanism of lithotrites. Removable instrument tray is wood, covered with rust-colored chamois, and contains three lithotomy forceps, graduated in size. A fourth forceps is missing.

Note: Charrière's name is often associated with the development of the lithotrite, one of the most complicated surgical instruments of the nineteenth century. Henry Thompson, a leading lithotritist of the time, credited Charrière with essential improvements in the screw mechanism for closing the jaws of the lithotrite (not featured in the instruments seen here), and this view was confirmed by Ernest Desnos, historian of urology, who cited Charrière as the "originator" of the screw mechanism, parallel-bladed lithotrite. According to D. Hayes Agnew, the instrument was finally brought to perfection by the conjoined labors of [Paris surgeon] Civiale and the eminent surgical cutler of Paris, M. Charrière." (excerpted from The Principles and Practice of Surgery, *vol. 2 (Philadelphia: J.B.Lippincott & Co., 1881),652.*

collections seem to confirm this judgment. In a word, they are simply more elegant than those made in this country in the same period. However, this alone does not account for the preference American physicians and surgeons showed for Charrière instruments. The external beauty of his instruments was merely ornament; the real achievement of Charrière lay in the mastery of materials and precision methods of manufacture.

The Charrière firm demonstrated its superior technical competence most clearly in the domain of complicated instruments incorporating intricate mechanisms. Examples of this class of instruments include Heine's osteotome, or chain saw, Charrière's own rotary saw (*scie à molettes*), and a wide variety of lithotrite designs. Few surgeons could afford these masterpieces of the instrument maker's art, which constituted the leading edge of technical advance in nineteenth century surgical instrumentation. Indeed, for their basic, day-to-day instruments, American surgeons had no need to purchase a Charrière instrument. They could patronize American instrument makers for domestic-made goods, or retailers that imported instruments from abroad, which often sold at lower prices than those made here. For new, more daring procedures involving complicated apparatus, however, American surgeons turned to the Charrière firm well into the 1870s. This inclination is illustrated by the development of instruments for litholapaxy by Boston surgeon Henry J. Bigelow.

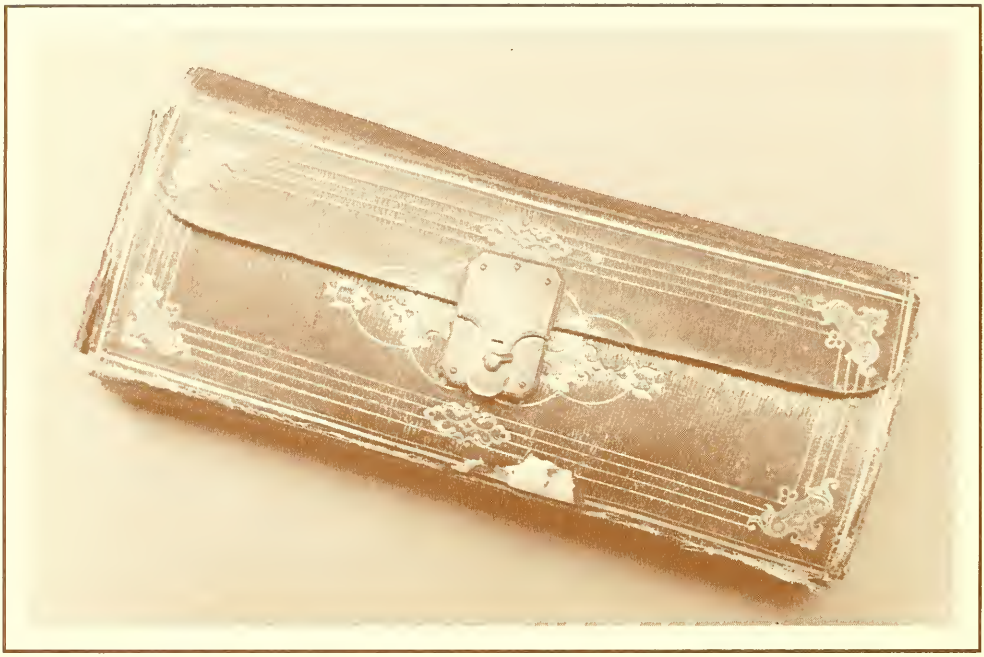
In early 1878, Bigelow proposed that lithotrity, or the removal of bladder stones by crushing and evacuation, would be most effective if performed in one "sitting."[2] Prior to Bigelow's announcement, "lithotritists" would crush the stone quickly, but only partially, and then allow time, often days, for the painful passage of broken calculi. Repeated "sittings" would be required to achieve complete removal of calculi fragments. Prominent lithotritists, led by British surgeon Sir Henry Thompson, contended that this procedure was dictated by the limits of urethral dilitation; one simply could not introduce a lithotrite or evacuating catheter of large diameter without risking urethral injury and ensuing complications. Bigelow disagreed, asserting that considerable advantages were to be obtained by introducing instruments of larger diameter (up to 11 mm., or 34 on the Charrière scale). The process of crushing and evacuating calculi, which Bigelow termed litholapaxy, could thereby be reduced to a single procedure. Bigelow had commenced operating in this fashion in the Spring of 1876 and spent the next two years refining the procedure and the associated instruments, chiefly the lithotrite, catheters, and evacuating apparatus.[3] Following a period of careful trials upon models and cadavers, Bigelow was ready to commission an instrument maker to produce prototype models according to his design. With no apparent hesitation, Bigelow sent his



Tonsillotome, ca. 1865. (Photo courtesy of Dittrick Museum of Medical History, Cleveland Medical Library Association. Accession No. 7238.)

Leather and paper-covered case, olive green color, with brass hinges and clasps; lined with rust-colored chamois. Case contains main shaft of tonsillotome, of polished and blued steel, with separate detachable pistol-grip handle of ebony and white metal (German silver?), stamped "Charrière à Paris," and additional smaller sized tonsillotome blades.

Note: Jean-Jules Charrière (1829-1865) was the apparent designer of this tonsillotome. It remained in production by the firm from the 1860s through the 1890s. See Charrière fils, "Nouvel amygdalotome," Gazette medicale de Lyon 13 *(1861): 509-511; and* Maison Charrière: Collin, Fabricant d'Instruments de Chirurgie *[trade catalog] (Paris: chez Collin, 1890),88, fig. 295.*



Pocket case for minor surgery instruments, ca. 1860. (Photo courtesy of Waring Historical Library, Medical University of South Carolina.)

Black Russian leather two-fold pocket case for instruments; decoration consists of gold-stamped border or fillet, and red and grey leather onlay with gold stamping in corners and surrounding clasp; white metal (German silver?) clasp; case lined throughout with red plush. Case contains several instruments for minor surgery, three of which are marked "Charrière."

specifications to the Charrière firm, by then under the direction of Adolphe Collin.[4] Collin produced the desired instruments, particularly the lithotrite, and sent them to Bigelow in Boston. Bigelow, satisfied with the results, then lent these French-made models to George Tiemann and Co. of New York, who used them as patterns for making regular 'production' models.[5] These were on the market in time for inclusion in the 1879 Tiemann instrument catalogue.[6]

This example of an American surgeon's reliance upon the Charrière firm illustrates a pattern that may have persisted for much of the nineteenth century: for either beautiful ornament or exacting precision, European instrument makers were held in high regard, and consequently, drew American patrons even though instrument makers here were proving themselves to be quite competent in many respects. By the mid-1880s this pattern changed, particularly as instrument design changed in response to asepsis. Ornament and overly complicated mechanisms steadily gave way to simpler, streamlined forms. Moreover, an instrumental, mechanical approach to disease and infirmity would increasingly be displaced by "miracle" drug cures emanating from the research laboratory. As a result, the few instrument makers who had attained some renown through the excellence of their work rapidly became obscure figures, known to today's medical community only through having their names attached to an instrument still in current usage. Who they were and what they achieved is seldom known, still less appreciated. It is for this reason that Dr. Boschung's article is such a welcome addition to the literature on surgical instruments and instrument makers. As he so aptly points out, the instruments themselves deserve more serious consideration and study. Just knowing where they may be examined by interested scholars is an important first step. To this end, I have made a quite limited and informal survey of American medical museums, to establish the presence and distribution of Charrière instruments. The results confirmed my initial expectation that Charrière's instruments are to be found in the older medical centers of this country, and what we find there are, more often than not, special purpose instrument sets. Since these are best appreciated through pictures, not words, we have obtained photographs and descriptions of Charrière instruments to compose a sampling of his work that can be seen at the present time in medical museums.

NOTES

1. *Boston Medical and Surgical Journal 33* (1845): 125.

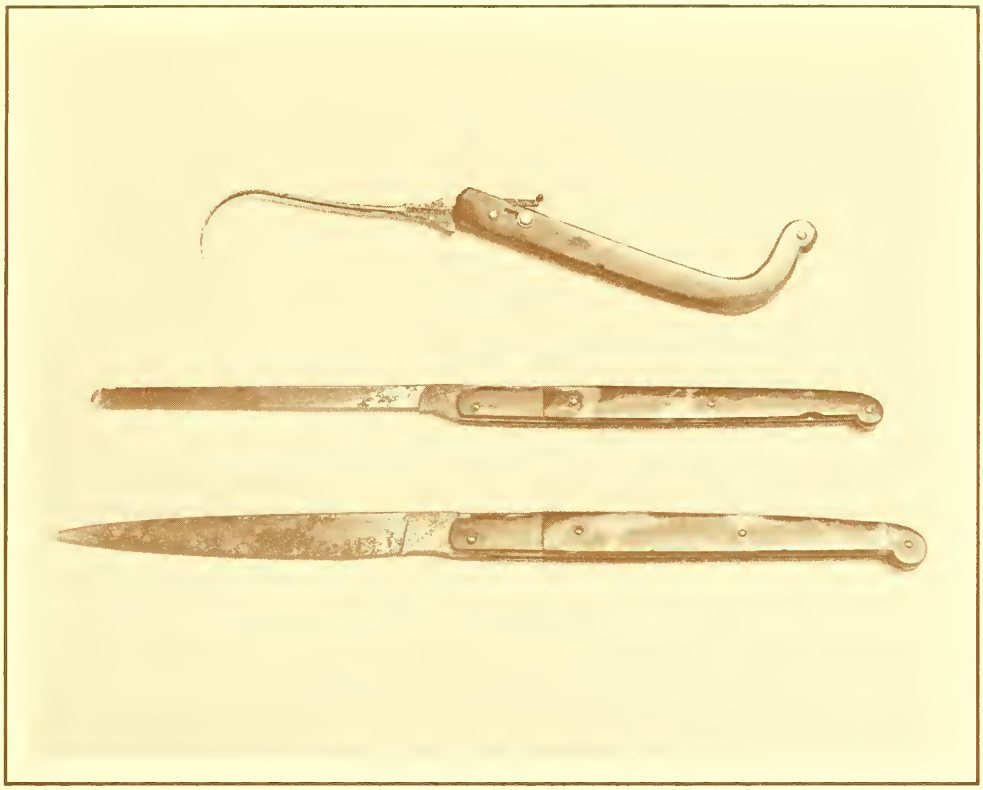
2. Henry J. Bigelow, "Lithotrity by a single operation," *Boston Medical and Surgical Journal 98* (1878): 259-71; 291-99.

3. *A Memoir of Henry Jacob Bigelow* (Boston: Little, Brown, and Company, 1900), 912-110.

4. *Ibid.*, Appendix II, Lithotrites. "Instructions to Collin et Cie., Instrument Makers, Paris," 282-85.

5. "Litholapaxy," *Medical Record 16* (1879): 307. In Britain, Bigelow permitted John Weiss and Sons to produce instruments patterned upon his design. See *Boston Medical and Surgical Journal 100* (1879): 765.

6. George Tiemann & Co., *The American Armamentarium Chirurgicum* (New York, 1879), pt. III, 36-37.



Minor surgery instruments, ca. 1860. (Photo courtesy of Waring Historical Library, Medical University of South Carolina.)

Three instruments (top to bottom) are tenaculum, probe pointed bistoury, and straight bistoury; all composed of steel blades, which fold out from the tortoise-shell handles.

Note: Charrière's instruments were featured in many surgical texts from the 1830s onwards. For example, Jean Baptiste Marc Bourgery and Nicolas Henry Jacob illustrated Charrière's instruments throughout their Traité complet de l'anatomie de l'homme comprenant la médecine opératorie, *8 volumes (Paris: C. Delaunay, editeur, 1832-1854). There, especially in vol. 6 (*Atlas. Médecine opératoire, *1839), many plates bear the inscription "Instruments de la Fabrique de Mr. Charrière." The pocket case instruments shown here are found in plate 17, figs, 1-3 (bistouries) and plate 34, fig. 21 (tenaculum). These same instruments were also later illustrated in plates I and II in Claude Bernard and Charles Huette,* Précis iconographique de médecine opératoire et d'anatomie chirurgicale *(Paris: Mequignon-Marvis, librarie-editeur, 1854). The same twenty-five plates, but with English legends, are found in the American translation of Bernard and Huette, entitled* Illustrated Manual of Operative Surgery and Surgical Anatomy, *by Cl. Bernard, M.D., and Ch. Huette, M.D., edited, with notes and additions, and adapted to the use of the American medical student, by W.H. Van Buren, M.D. and the late C.E. Isaacs, M.D. (New York: Ballière Brothers, 1861). This source thus provides nineteenth-century English terms for the identification of Charrière's instruments. Another useful aid to identification is* New Elements of Operative Surgery: Alf. A.L. M. Velpeau...translated by P.S. Townsend, M.D....*under the supervision of, and with notes and observations by Valentine Mott, M.D. (New York: Samuel S. and WIlliam Wood, 1847).*

Amputating and operative instrument case, ca. 1853.(Photo courtesy of University of Cincinnati Medical Center, Information and Communications, Historical, Archival, and Museum Services. Accession No. MI. WO 005 no. 1-22 1857.)

Mahogany case, brass corner straps,clasps, and brass plate with handle on lid; interior of case lined with rust-colored chamois. Case contains capital bow saws, three amputating knives, catling, chain saw, large crown trephine fitted to handle, small crown trephine, brush, two rongeurs or bone forceps, dissecting mallet, chisel, lenticular knife, aneurism needle, artery forceps (Amussat's), tourniquet (Charrière's), and pins in paper packet.

Note: Jesse P. Judkins (1815-1867), the owner of this set, was graduated from the Medical College of Ohio in Cincinnati in 1838. He taught anatomy and surgical pathology for several years before resuming study, this time in Europe during the years 1852 and 1853. It was probably then that he acquired his Charrière set, which contains an unusual assortment of instruments appropriate to his dual interest in anatomy and surgery. For the remainder of his career, Judkins taught these subjects at various Ohio medical colleges. See Otto Juettner, Daniel Drake and his Followers, Historical and Biographical Sketches *(Cincinnati: Harvey Publishing Company, 1909), 324-325.*

AUTHOR

James Milton Edmonson is Curator of the Dittrick Museum of Medical History. His interest in a museum career was prompted by a semester-long internship in the Department of Decorative Arts of the Brooklyn Museum under the auspices of the Great Lakes Colleges Association Arts Program in New York. Upon receiving his baccalaureate from the College of Wooster in 1973, he commenced graduate studies in history and museum studies at the University of Delaware.

As a Fellow (1974-78) in the Hagley Graduate program, Edmonson studied the history of technology, leading to the M.A. (1976) and Ph.D. (1981). In 1978 and 1979 he conducted archival research in Paris as a Fulbright-Hays Fellow. In 1981 his completed dissertation received the Wilbur Owen Sypherd Prize for the outstanding doctoral dissertation in the humanities at the University of Delaware. It has recently appeared in monograph form as *From mecanicien to ingenieur: Technical Education and the Machine Building Industry in Nineteenth-Century France* (Garland Publishing, 1986).

In addition to his responsibilities as Curator of the Dittrick Museum, Edmonson is Assistant Professor in the History Department of Case Western Reserve University. In this capacity he teaches the history of medicine and medical technology in the Program in the History of Technology and Science and in the School of Medicine.

East Gallery--Medical exhibits in the Arts and Industry Building prior to the move to the Museum of History and Technology in 1964. (Photo courtesy of Smithsonian Institution.)

FOCUS

THE HISTORY OF THE HEALTH SCIENCES AT THE NATIONAL MUSEUM OF AMERICAN HISTORY

by Audrey B. Davis

The Division of Medical Sciences of the National Museum of American History is among the oldest divisions of the Smithsonian Institution and among the oldest medical museums in the United States. The Smithsonian Institution was founded in 1846 through a bequest from James Smithson, an illegitimate son of the Duke of Northumberland, who instructed in his will that "the United States of America, found in Washington, under the name of the Smithsonian Institution, an Establishment for the increase and diffusion of knowledge among men."[1]

Joseph Henry, the first Secretary, put Smithson's will into operation by increasing knowledge through the stimulation of original research and its diffusion through publications. Henry did not promote collections.

The first collections brought to the Smithsonian were natural history specimens which had been accumulated since the Lewis and Clark Expedition in 1803. Spencer Fullerton Baird, appointed in 1850 as Assistant Secretary to take charge of the museum, supervised the world's "largest and best series of minerals, fossils, rocks, animals and plants of the entire continent of North America."[2] After Henry's death in 1878, Baird became Secretary and emphasized the collections which were administered under the auspices of the United States National Museum.

The medical collections were organized from drugs and plants exhibited in 1876 in the Arts and Industries Building at the Centennial Exhibition in Philadelphia. These collections were first housed in a new "temporary" building

begun in 1879 and completed in 1881. This building, which still stands, is called the Arts and Industries building and is reputed to be the least expensive building per cubic foot ever erected by the government in Washington. The Arts and Industries building stands next to the famous Smithsonian structure known as the Castle, which was the first building constructed for the Smithsonian. Designed by James Renwick, the Castle construction proceeded, with the cornerstone being laid in 1849 and all work completed in 1855.[3]

The collections from the Philadelphia Exhibition became the nucleus of the Department of Anthropology's Section of *Materia Medica*. Rear Admiral Dr. James N. Flint, Assistant Surgeon of the Navy and the first curator of the collection, reported that at the end of the first year there were 3,163 specimens, of which 2,150 were "arranged in cases and open to public inspection." By 1960 the *materia medica* collection had grown to 15,000 specimens. Flint identified, cataloged, labelled and exhibited these specimens (which included thirty-five kinds of cinchona).[4] The collections were administered under the umbrella of the Anthropology Department until 1912, and then under the Division of Textiles until 1918.

Flint was interested in other medical fields and also collected objects related to primitive medicine, magic and superstition. To accommodate the greater range of collections, in 1898 the name was changed to the Division of Medicine, the name it retained until 1939, when it became the Division of Medicine and Public Health. In 1957 the title was modified again to the Division of Medical Sciences.

Dr. Charles Whitebread succeeded Flint upon the latter's retirement in 1912. Whitebread, who served as curator for thirty years, was himself a pharmacist and under his tenure the focus of the division was changed to include the history and practice of pharmacy. Whitebread acquired a good collection of equipment used in the manufacture and sale of pharmaceuticals from manufacturers such as Parke, Davis and Co., Frederick Stearns and Co., Wallace Brothers, Schieffelin and Co., Eli Lilly and Co., E. R. Squibb and Sons.[5]

Whitebread was also responsible for the creation of the museum's Old World Apothecary Shop, which had been received in 1945 from the American Pharmaceutical Association, which had obtained it as a donation from E. R. Squibb. It remains on exhibition in the Hall of Medical Sciences. The Squibb donation was extended through the receipt of artifacts and pharmaceutical instruments and vessels from Western European countries of the Renaissance period. The shop had been part of the Old German "Munster Apotheke" of Freiburg in Breisgau, a collection purchased by Squibb in 1932 and displayed in

the 1933-34 Century of Progress Exposition in Chicago. Included among its contents are drug containers from the fifteenth century and more recent tools, fixtures, rare books and manuscripts, such as pharmacopoeias and herbals, portraits, illustrations, caricatures and art.

In 1922 Whitebread opened the first Public Health Gallery in the Western Hemisphere to exhibit objects and illustrations devoted to public health education and dental hygiene. This exhibit was actually in response to earlier requests from public health officials and workers to utilize the national museum in an educational capacity concerning public health. Whitebread was among the first curators to respond to the professional medical and health community by collecting and mounting exhibitions of items that were of mutual interest to the museum and the profession and possessed a didactic value for the public.

In the ensuing years the collection was broadened to include medical and dental instruments and related artifacts. One unique gift includes a large number of patent models transferred from the patent office in 1926. This collection contained over 300 dental patent models and a number of pharmaceutical and medical items. The Columbia Dental School collection of dental artifacts included other patent models. Among other early acquisitions were x-ray tubes, including one used by Wilhelm Roentgen in 1896 (still on exhibit), memorabilia of W. T. G. Morton, Crawford Long and William Gorgas. Although the collections were expanded, the exhibitions continued to be centered primarily on *materia medica*, arranged in a simple--and by today's standards--unappealing manner.

Mr. George Griffenhagen, himself another pharmacist, joined the museum in 1952. He succeeded Whitebread, who had retired in 1948. Griffenhagen brought dramatic change to the medical collections and exhibitions. He improved the medical and dental collections and renovated the exhibits in these areas by adding color, lighting and new labels. In addition to cases displaying instruments, Griffenhagen added the dental equipment of Greene Vardiman Black.

In November, 1957, a new Hall of Health was opened, using models, modern anatomical and physiological information about the body. The centerpiece of this exhibit was a female manikin which had been made in Germany. The bodily systems were designed to light up beneath a plastic skin and were explained in sequence from a tape recording imbedded in the body frame. Also described were the structures and functions of these systems. This much appreciated "transparent woman" or "talking lady" was among the earliest audiovisual exhibitions displayed in a history museum. (An earlier model of this figure was

This exhibit on psychological testing apparatus was featured as one of the "cases-of-the-month" in 1975. (Photo courtesy of Smithsonian Institution.)

mounted in the Cleveland Health Museum and other museums in Europe which were regarded as science museums.) In 1978 the Smithsonian exhibit was loaned to the Health Museum in Bridgeport, Connecticut, where it is on display today.

EXHIBITIONS

In 1964 a number of new exhibitions were constructed with parts of the collections from the Arts and Industries building and those additional pieces gathered to enhance the new exhibit. These were installed in a new building erected across the Mall, at a cost of $36,000,000. The new building became the National Museum of History and Technology. In this new and more spacious setting it was possible to exhibit an additional three offices, one hospital ward and an American pharmacy Griffenhagen had acquired. The 1890 pharmacy, with its elaborate Victorian fixtures and drug containers, came from the Roach Drug Store in Washington, D.C. To stock the pharmacy as it would have appeared originally, additional pieces were selected from the division's collections. These items include the shelfware,advertising signs, showcases and globes, patent medicines, lamps, and glass-labelled containers. To show a century of American pharmaceutical manufacturing devices and equipment, such items as drug mills, a tablet machine, distilling apparatus and condensers were placed on an open platform in an area between the two pharmacy restorations.

Opposite the manufacturing exhibit were artifacts in cases, elegant drug jars grouped by country of origin, including England, Spain, France, Holland and Belgium. Between these two displays in freestanding cases were mounted mortars and pestles, including one large one from the Squibb collection, with the inscription, "Sebastian Ertzberger orders me to be cast, by Heinrich Weitnauer in Basle, 1686."

The curators who installed the medical halls in the Museum of History and Technology were John B. Blake and Sami K. Hamarneh. Blake was the first trained historian of medicine and American culture to become a division curator. His tenure began in 1957 and he was joined two years later by Hamarneh, a pharmacist with a doctorate in the history of pharmacy who specialized in the history of Arabic pharmacy and medicine. Blake and Hamarneh completed the most comprehensive medical history exhibits to date in 1966. Many of the exhibits for which they were responsible remain on view.

In addition to the Hall of Health and Pharmacy Hall, a medical and surgery hall and a dental history hall were mounted. The major areas covered in the

history of medicine hall, many of which remain on exhibit, include: the development of the microscope; a bacteriological laboratory; faith healing; superstition and quackery; electricity in medicine; spectacles and ophthalmic tools; stethoscopes; nasal and otolaryngeal artifacts; vaginal and anal specula; x-ray tubes and equipment; the Dodrill-GMR mechanical heart; bloodletting; an 1875 Massachusetts General Hospital ward depicting the first trained nurse; a diorama of the Pennsylvania Hospital "circular room;" and a small section of the history of anesthesia.

The dental section consisted of one case each devoted to the development of drilling, extracting and filling teeth as well as the offices of G. V. Black, Edmund Kells and orthodontist Edward Angle. Two cases displayed one of the four extant sets of George Washington's teeth and the ornate-handled, ivory and pearl tools for working on teeth, as well as other sets of teeth made in the eighteenth and early nineteenth centuries, just before dentistry became a profession in this country.

After Blake left the division in 1962 to become Chief of the History of Medicine Division of the newly constructed quarters of the National Library of Medicine in Bethesda, the division remained under Hamarneh's supervision. I joined him in 1967 as the first woman to hold the curatorial position.

Exhibits of a more temporary nature were mounted in the Hall of Health, which became vacant after the "transparent woman" exhibit was loaned out. In 1972 Hamarneh installed an exhibit sponsored by the World Health Organization and the Department of Health, Education and Welfare. On view were historical milestones of international public health programs, including immunization projects, control of insects with chemicals, nutrition advice and technical advances (including Michael DeBakey's left ventricular bypass device). Among other exhibits which appeared in this space were a special exhibit on the history and scope of plastic and reconstructive surgery and pharmacy in prints.

Two major shows were installed in this space over the past decade and a half. The first show, which I mounted in 1973, focused on the history of rehabilitation medicine under the title "Triumph Over Disability." A second show, set up a decade later called "Pain and Its Relief," remains on exhibition. The latter two shows were supplemented with illustrated catalogs, which are currently available from the museum. Both of these exhibitions included some demonstrations. In the rehabilitation show visitors could move an artificial hand, turn a wheel used to exercise a weakened arm and shoulder and walk a platform with guard rails just as an individual with a leg injury would do. In the pain exhibit recent devices for overcoming chronic pain are periodically

demonstrated by docents. In a full-scale, modern operating room on exhibit, monitors display the vital signs of an anesthetized patient.

The latest medical sciences exhibit, which is co-curated by the Division of Agriculture, was mounted in December, 1987. It is another novel exhibit for the museum, one which relates the history of eight major elements of modern genetics in a special, highly technological exhibit designed by Sam Wexler of New York. The culminating section places the visitor within a large hexagonal theater designed to resemble a giant cell (called a cell theater), in which components of cells are flashed on all of the flexible walls while a narration explains the major components of a living cell. This exhibit will travel in 1988.

Mounted as part of an ongoing schedule, one or two case exhibits have long been a tradition in the museum, the name of which was changed to the National Museum of American History in 1980. Special short medical history exhibits mounted over the past several decades include those on the history of instruments, such as hearing aids, spectacles, dental articulators; medically significant individuals including dentist J. Oppie McCall and bronchoscopist Chevalier Jackson; medical institutions, including the National Institutes of Health, visiting nurse associations, experimental psychological laboratories, the first public health laboratory and topically important subjects such as vitamins.

CURRENT STATUS OF COLLECTIONS

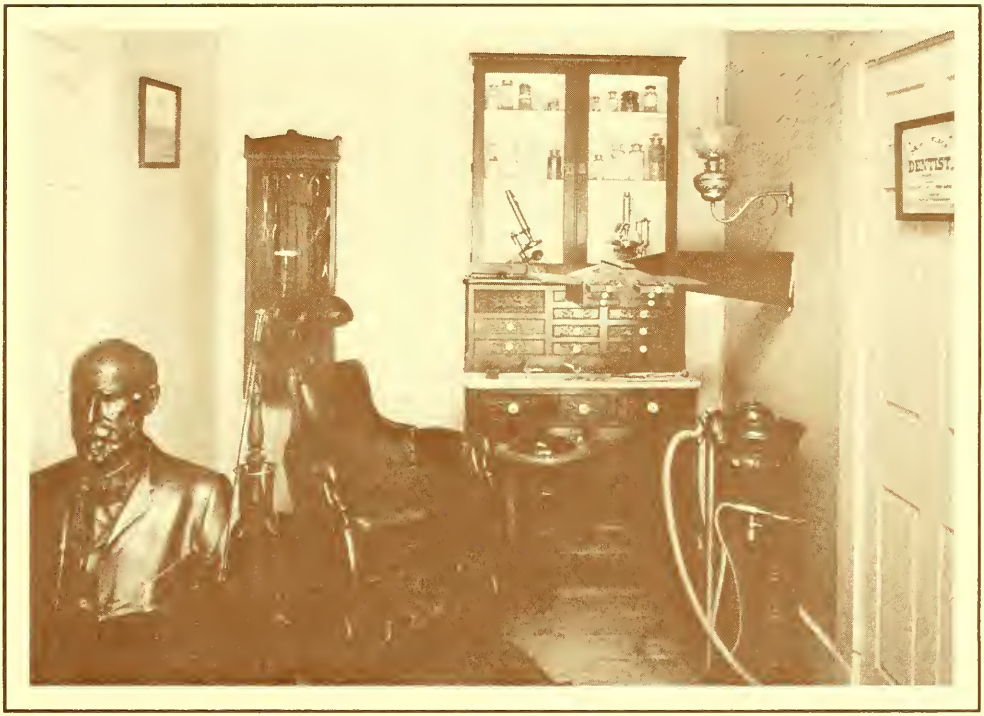
The Division of Medical Sciences is one of twenty-one divisions in the National Museum of American History. Its collections and programs compete for monetary support, storage and exhibit space. The museum collections also supplement collections in divisions featuring American cultural history, music, physical sciences, mathematics, electricity and modern physics, transportation, numismatics, philately, armed forces history, photography and graphic arts, etc. Medical collections are broadly divided into four main areas: medicine and surgery, dentistry, pharmacy and public health. From their inception, emphasis has been placed on American-made, -produced, or -used items, although collecting was never limited to items of American heritage. Consequently, many Western European-made medical objects are included in the collections, especially from periods through the early twentieth century. Most of the objects representing the period from World War I and onwards are of American origin. The current emphasis is to collect American-made instruments and objects. As in any museum collection with a history as extensive as this one's, a few pieces that seem to be out of scope, such as acupuncture equipment and some middle Eastern items, have found their way into the medical collections. These items add charm and give balance to the collections from the scholar's point of view,

and certainly lend interesting perspectives to exhibits which stress the social and cultural context of medicine, public health, pharmacy and dentistry.

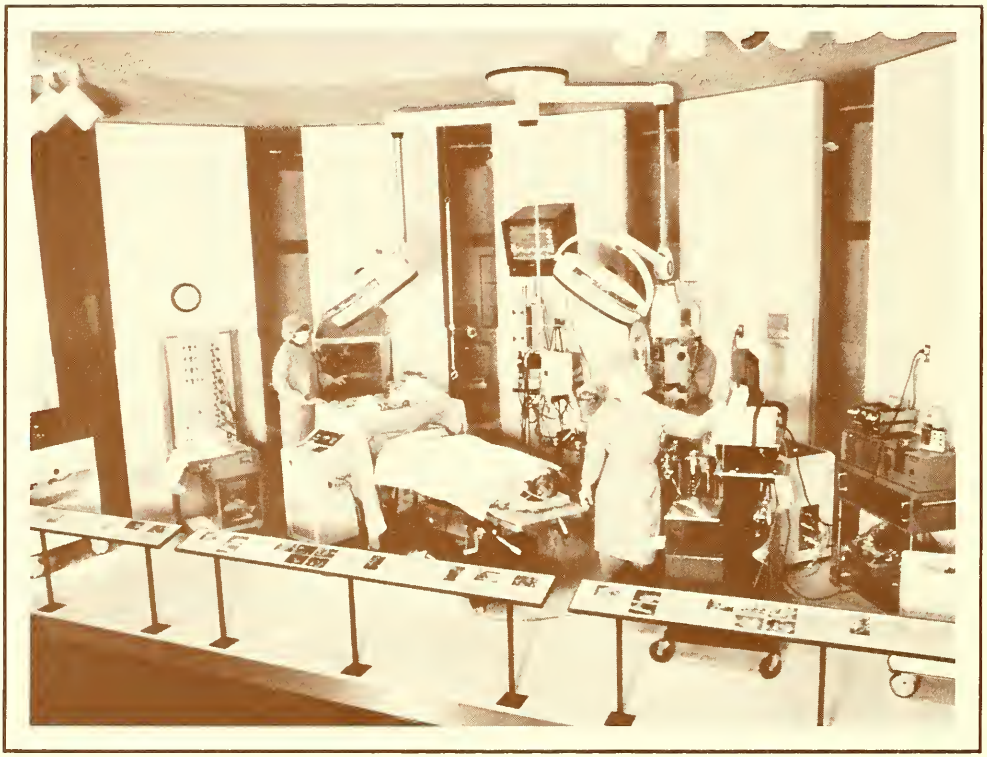
The strength of the medical collections lies in a cross section of diagnostic instruments from their invention in the nineteenth century to the present; surgical sets and kits from the Revolutionary War (only one set); Civil War through World War II; a number of obstetrical forceps and an eighteenth-century obstetrical set made in Germany; bloodletting tools mainly represented in the catalog *Bloodletting Instruments in the Museum of History and Technology* by A. Davis and T. Appel; a wide selection of dental instruments and furniture, primarily made and used in the U.S. since the mid-nineteenth century (but with only spotty representation of items made in the late twentieth century); a collection of surgical staplers, which includes early Russian, as well as American, pieces; a cross section of artificial limbs, beginning with patent model limbs from the period 1848 to 1880 and concluding with some of the most sophisticated limbs in current use.

Dental practice and technology is well represented in the museum, the collection having been enlarged from large donations given by the S. S. White Dental Manufacturing Company, the University of Pennsylvania Dental School, the Columbia Dental School and the universities of Illinois and Indiana dental schools. Choice items are on exhibit which were borrowed from the University of Maryland School of Dentistry several decades ago. I am currently in the process of compiling a catalog *raisonee* of this collection. In this endeavor I work closely with members of the Academy of the History of Dentistry to improve the collection and its documentation.

The pharmaceutical collections include patent medicines; standard over-the-counter preparations; prescription drugs; vitamins; vaccines; biologicals; advertising literature; and all the expected preparation materials used in pharmacies. Under the guidance of Ramunas Kondratas, who joined the staff as Curator in 1977, and who currently supervises the division, the public health collections have been considerably strengthened. In addition to photographs of early public health laboratories and commercial production of vaccines, etc., literature pertaining to public health campaigns, including polio epidemics, tuberculosis, flu epidemics, and most recently, the A.I.D.S. epidemic, has been gathered from major institutions such as the National Institutes of Health and the Centers for Disease Control in Atlanta. The division is also a member of the newly formed Clearing House for collections of materials related to A.I.D.S.



Reconstruction of Greene Vardiman Black's dental office features the original equipment. (Photo courtesy of Smithsonian Institution.)



Modern operating room showing preparation of anesthesia presently on display as part of "Pain and Its Relief" exhibit. (Photo courtesy of Smithsonian Institution.)

Barbara Melosh joined the curatorial staff in 1984 and collects medical artifacts related to twentieth-century American medicine. Her main interest is the history of American culture. Presently a curator of modern biology is in the process of being selected. This new curator will provide guidance for the exhibition hall on American science, which is scheduled to open in the 1990s. Two specialists in the division are Michael Harris, who is a pharmacist and historian of pharmacy, and Judy Chelnik, who recently joined the staff after working with the medical collections at the Howard Dittrick Medical History Museum in Cleveland.

PHOTOGRAPHS

Photographs of the medical, dental and pharmaceutical objects and of related items in textbooks, of inventors and physicians, dentists, pharmacists and technicians in their laboratories, offices and hospitals, complement the medical instrument collection and aid the instrument researcher and exhibit planner. The photograph collection is listed according to expected major categories in a computer-generated catalog, which is updated as new items are added to the photograph collection. Although color slides of selected pieces are on file, there are relatively few items photographed in this format. Excellent recent additions are the medical and biologically related photographs collected since the 1920s by the Washington, D.C., based educational organization, Science Service, in conjunction with the preparation of the weekly publication, *Science Newsletter.*

Augmenting the instruments, artifacts and photographs is a fine collection of medical, dental, pharmaceutical and biological instrument trade catalogs from the period of 1840 to the present (although there are some gaps, particularly in the 1930s and 1940s). Not all early catalogs are represented in the collection. These trade catalogs and others in major library and museum collections are listed, together with the place of location, in the bibliography entitled *The Finest Instruments Ever Made* (Davis and Dreyfuss), published in 1987.

Plans are underway for redesigning and rescripting all the exhibits. All the areas represented in the collections will be re-evaluated and new scripts will reflect the social, as well as technological, history of the items included, in order to place the history of American medicine from the eighteenth century to the present in a multi-dimensional cultural setting. The economic and social factors which helped to determine the technological development in the medical specialties will be selected and analyzed to place medicine within the context of American history.

The Division of Medical Sciences does loan objects to museums which have proper security systems and which meet requirements for the care and display of historical objects. Generally, rare objects are not loaned except under the most unusual circumstances. There is no policy for exchanging duplicate items, although collection policies evolve and new considerations may lead to changes in the future. The Smithsonian follows strict collection policies which are aimed at avoiding duplicates and which require full justification for the collection of all items.

The Smithsonian Traveling Exhibition Department is a separate unit with its own policies concerning the loan and exhibition of exhibits organized under its auspices. Division staff currently are making plans for a traveling exhibit on the history of genetics, titled "The Search for Life" and has sent an exhibit on the television series "MASH" to Cleveland.

1. John H. Blake, "Dental History and the Smithsonian Institution," *Journal of the American College of Dentists 28* (June, 1961): 122-127.

2. *Ibid.*

3. George Brown Goode, ed., *The Smithsonian Institution 1846-1896* (Washington, 1897), 256. The origin and development of the Smithsonian Institution is recorded in government reports and the *Annual Reports* of the Board of Regents beginning in 1846.

4. Sami K. Hamarneh, "Pharmacy and Public Health at the Smithsonian,"*Pharmacy in History 21* (1979): 165.

5. *Ibid.*, 166.

MASH exhibit was extremely popular when on display in 1983. (Photo courtesy of Smithsonian Institution.) .

NATIONAL MUSEUM OF AMERICAN HISTORY

Curator:	Audrey B. Davis, Ph.D.
Location:	Constitution Avenue between 12th and 14th Streets, Washington, D.C.
Telephone:	(202) 357-2368
Open:	Every day except December 25
Hours:	10:00 a.m. - 5:30 p.m. (Winter)
	10:00 a.m. - 9:00 p.m. (Memorial Day - Labor Day)
Admission:	Free
Access:	On-street parking is limited to two hours between 10:00 a.m. and 10:00 p.m. Subway stops: The Smithsonian Station exits on the Mall and leads to the second floor entrance. Federal Triangle stop is half a block from the Constitution Avenue (or first floor) entrance to the museum.

AUTHOR

Audrey B. Davis is Curator of Medical Sciences at the National Museum of American History. Her book, *Medicine and Its Technology: An Introduction to the History of Medical Instrumentation* (1981), was selected as "outstanding" by *Choice* in 1982. She has since completed a lavishly illustrated book in collaboration with Richard Glenner and Stanley Burns, entitled *The American Dentist*, which is scheduled to appear in early 1989. Currently Dr. Davis is working on a history of visiting nursing in America. She is always interested in hearing from those who collect and study medical and dental instruments.

Photography Credits

Bibliotheque Nationale, Paris

Dittrick Museum of Medical History
Cleveland Medical Library Association

Hahnemann University Archives

Frederick Karst

National Museum of American History
Smithsonian Institution

The Pearson Museum

Waring Historical Library
Medical University of South Carolina

University of Cincinnati Medical Center

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